

SCIENCE OF MAN

DECEMBER 1960

75c



Candian Earthworks - Ancient Turquoise - Petroglyphs - Mexican Christmas

COMMENTS BY THE EDITOR . . .

Indian Mound Damaged

St. Louis, Mo., Sept 18, 1959—Four St. Louis youths last Sunday afternoon completely destroyed what remained of a small Indian mound near here. The youths had been playing in an area which was being cleaned for the new superhighway and had noticed what they thought was a horse bone sticking up through the dirt, they said. One thing led to another and according to the story of the older boy, they decided to look for gold. The road crew foreman when contacted this morning said he had noticed the mound and had intended to call the Museum during the weekend but had forgotten to do so and had not posted a guard.

Scouts Destroy Ruins

Abilene, Texas, Jan. 4, 1960—Three teenagers, one in Scout uniform, while collecting souvenirs for what they said was a troop project, finished the demolition of a site hitherto unknown to local archaeologists just west of Abilene. The boys first found three arrowheads and some other stone artifacts they did not recognize and decided to look around for more . . . Mr. O. P. Widsoe, Abilene farmer and amateur archaeologist . . . asked the boys to accompany him and show him where they found the artifacts as they appeared to be different from any he had ever seen. After four hours of searching for the site it was finally located but according to Widsoe nothing remained. What had not been destroyed by the erosion in the area had now been definitely destroyed by the Scouts.

Dos Norteamericanos

Juarez, Chih., Feb. 19, 1960—Through the diligence and quick action of our illustrious and well trained Customs Officials, two North Americans were apprehended attempting to take Mexican antiquities valued at one thousand eight hundred pesos across the border. The apprehended ones stated they had taken them from a tomb which they had found in Oaxaca near Guingola and had sold them to a dealer in Los Angeles.
{Our translation}

Here we have three classic examples of what is being done to ruin our heritage of the historic past. Worse yet, one of the newspaper clippings shows what is being done to ruin our relationships with our sister republic on the south. No wonder we have so much trouble with permits to dig in Mexico. Also, is there little wonder, too, that we lose so many of our precious connections with our past right here in our own country?

As archaeologists, what are we doing to stop this vandalism? What are we doing as professionals to stop the illicit flow of artifacts across our national borders? What are we doing to show our camera-happy tourists how to cultivate the friendship of native peoples instead of making enemies through discourtesy and ignorance?

Actually it is my contention that we are doing very little about it. All of us archaeologists, including this writer, in the past, have been too busy counting and cataloging potsherds, or too busy writing books on the sex life of this native group or that native group, to take time to see just what is undermining our work. And by this I do not mean to belittle the work of anyone but merely mention it to show where our time is spent.

For several years as the Director of the *Centro de Estudios Regionales*, a branch campus of Mexico City College in Oaxaca, Oax., I had many opportunities to see our relationship with the Mexican people undermined through carelessness and discourtesy of many American tourists and souvenir hunters. I have also seen our relationship further endangered by the native Mexican grave looters who kept the American collectors supplied with their *idolos*.

Here in our own country I have seen our precious connections with Early Man damaged or destroyed by well meaning Scouts and by untrained amateurs. The only history Early Man has left us is the unwritten history contained in the ruins, artifacts, and bones which he has left hidden throughout the length and breadth of our land. Now these are being destroyed through ignorance or maliciousness.

Can this damage to connections with our prehistoric past be stopped? Can the damage to our international relation-

ships and our interracial and intercultural relationships be stopped?

Yes, it can.

It can be stopped through education only. We, and only we, are in a position to do so. We fail ourselves if we do not see our obligations and recognize them as obligations. If we, whose profession or hobby it is to work with native peoples or with their ruins, do nothing to stop these things, then who is there left who will do it?

Some eight or ten years ago in California an organization was founded which could have done much to stop just the sort of maliciousness and ignorance that have been described. It was called the National Association of Local Anthropology Clubs. This organization with the imposing name tried to unite student anthropology clubs in colleges and at the same time to sponsor amateur adult clubs and high school student clubs. Its purpose was to educate the interested public along anthropological lines, to guide them in being a help rather than a hindrance. But, here again, the sponsors who thought up this excellent idea were too busy counting potsherds to follow through. Now nothing remains but a few high school clubs.

A few months ago, Don MacLachlan, the editor and publisher of *GEMS & MINERALS*, conceived the idea of educating the amateur archaeologists and anthropologists, to take them out of the mere collector and general nuisance status. Could he not train these people who are now interested slightly in our ruins, in our Indians, in picture taking, in collecting, through a magazine slanted at popular interest instead of technicalities?

He had found out through his other publication that the best way to educate people painlessly is through a hobby. With this in mind, he sent out an SOS to an anthropological organization for an editor. The writer was recommended and appointed to the position. You now have the first issue of the *SCIENCE OF MAN*, dedicated to the work of educating the non-professional through the hobby technique and the student in college. Through this medium we hope to build a full appreciation of our Indian ruins, of our natives, past and

CONTINUED ON PAGE 35

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DECEMBER 1960

SCIENCE OF M A N

A MAGAZINE DEVOTED TO THE STORY OF MAN, HIS WORKS, AND HIS PAST AND TO THE POPULAR PRESENTATION OF THE FASCINATING STORY OF ARCHAEOLOGY, ETHNOLOGY AND THE OTHER SCIENCES OF MAN.

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The walled enclosure as it may have appeared when in use.

The Ross Earthwork Near Hawkesbury, Ontario

By Thomas E. Lee

In the spring of 1951, I spent two days investigating a rectangular earthwork five miles east of Hawkesbury, Ontario, for the National Museum of Canada. It is situated on the former Ross farm, on the east side of the Little Rideau River near its junction with the Ottawa River (Fig. 1). Persistent local traditions placed the site of the famous Battle of the Long Sault somewhere on the Ross farm. Some officials thought that this earthwork might mark the exact spot where Dollard and his men were overwhelmed by the Iroquois in 1660. The Ross family settled on the farm in 1840 and had no record of any building near this place and no information concerning the earthwork.

The earthwork lies about 100 yards south of the Ottawa River and about 50 yards east of the Little Rideau, on the brow of a terrace which drops off quite sharply toward the north (Figs. 2 and

4). It consists of a series of earth ridges which vary in width from 8 to 15 feet. These enclose a flat rectangular area which is slightly lower than the surrounding land surface of the terrace and nearly five feet below the highest point on any ridge. The southeast corner is very low. This may indicate the position of a former doorway although it is also possible that logging operations have reduced the height of the ridge at this point.

Some indication of age is provided by the stumps of several cedar trees which stood until a few years ago on the crests of the ridges, on the inner slopes, or within the enclosure (Fig. 5). Only two exact counts, 72 and 77 years, could be made of the growth rings. Other stumps, lacking central pith and the first few rings, appear to represent 55, 64, 66, 77, and 89 years of growth. A living hard maple on the crest of

the west ridge was 15 inches in diameter at the time of the investigation.

The enclosed area is remarkably level except for four mounds of earth which are from 6 to 12 inches high and from 5 to 10 feet across. Three of these are roughly circular. Rain accumulated and showed that the lowest part of the floor is in the southwest corner.

My first problem was to determine the nature and origin of the earth ridges. Test trench 1 (5x15 feet) was cut across the east ridge near its north end (Fig. 5). The removal of sod exposed flecks of charcoal along the crest of the ridge and at the base of the inner slope. Thin layers of crumbly reddish shale were then planed off, revealing bits of charcoal in line with the crest of the ridge.

The charcoal was first observed at a depth of 4 inches. It increased in quantity with greater depth. Tiny fragments of charred bark were seen at

7 inches depth. Charcoal concentrations continued to occur directly below the crest. At 11 inches depth, just at normal ground level here, ashes appeared with the charcoal. The latter was more scattered than it had been in the upper part of the ridge, and larger pieces were found. These were from cedar and oak trees. At 14 inches there were much larger concentrations of charcoal, while the earth showed evidence of having been subjected to fire. At this point, bits of charred birch bark were associated with cedar charcoal.

The first definite traces of a building wall appeared at 18 inches depth. A dark band of earth, containing considerable charcoal, was seen to be perfectly in line with the orientation of the ridge and just inside its crest. At 19 inches, no feature other than traces of the wall was visible. Since the wall extended only halfway across the trench from the south (Figs. 3, 6), it must indicate the position of a doorway.

Hard shale was encountered at 23 inches. The wall trench had been cut down into this for an additional two inches. No details of the wall construction were learned from the short section exposed. No indications of upright posts were observed. The wall trench was about 11 inches wide at the base. Insufficient charcoal and ash are present to suggest heavy timber construction. Certainly earth from the inside was piled against the outside and was slightly hardened when the walls burned. This circumstance, plus the occurrence of bark fragments, argues for a relatively flimsy pole construction although no post molds were seen.

Further excavations on the inner side of the wall showed that a ledge of hard shale about 30 inches wide, had been left intact a few inches above the level of the floor (Fig. 3). It probably extends around the entire enclosure. This might have served as storage or sleeping space in damp weather. It is evident that considerable difficulty with water seepage was experienced, since a system of drainage ditches crosses the floor. Test trench 1 exposed the junction point of a branch drain and the main canal (Figs. 3, 6). These drains are about 16 inches wide and 5 inches deep. Their outlet point is probably at the northeast corner of the earthwork, where the outside slope of the terrace is rather steep. The water may have been carried under the wall and earth ridge through a hollow log. The original building floor of hard shale was found at 26 inches

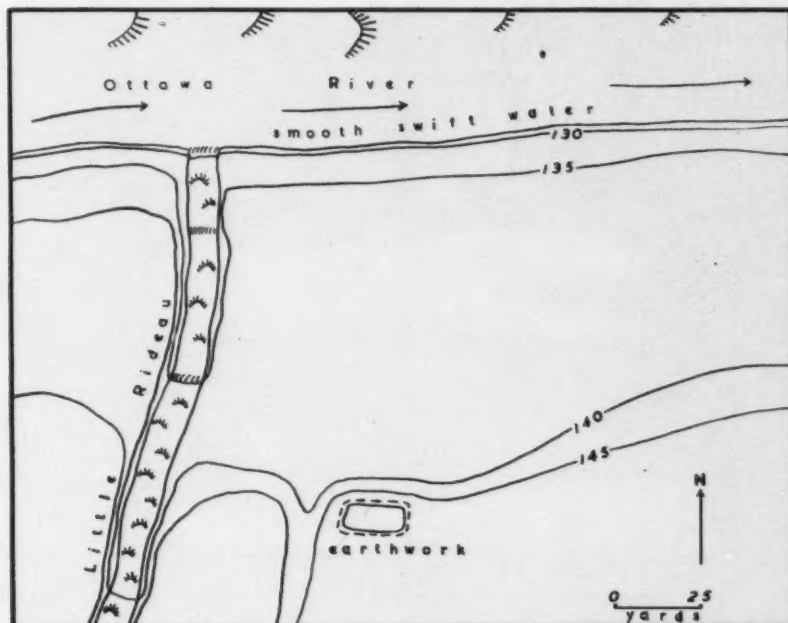
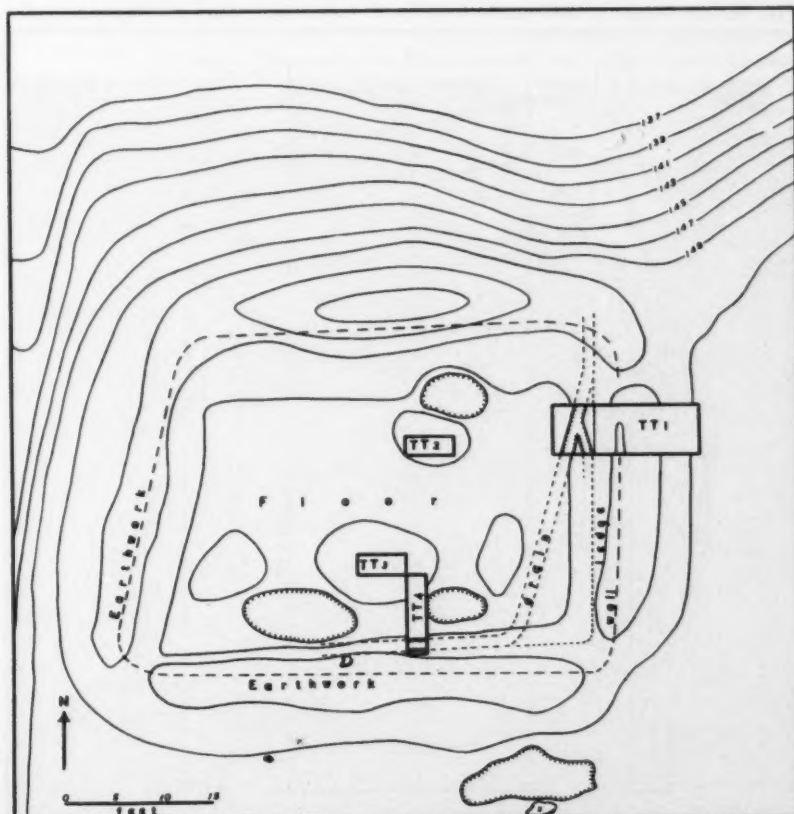
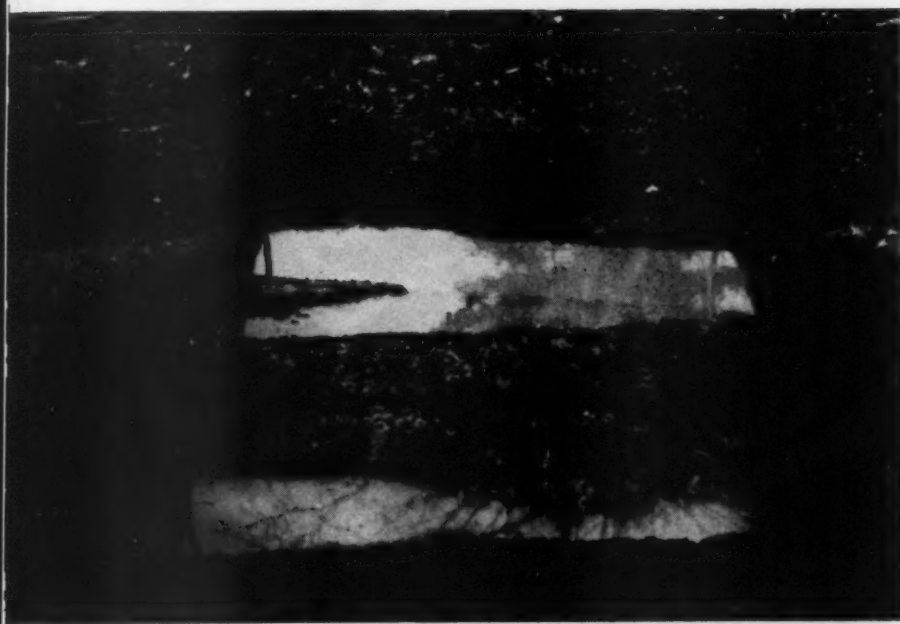


Fig. 1: The Ross earthwork in Ontario, at the junction of the Little Rideau and Ottawa Rivers.

Fig. 2: Plan of the earthwork, showing parts of the old drainage system and the positions of test trenches.





below the crest of the east ridge. Humus, charred material from brush fires, and shale washed in from the ridges have since accumulated on it to a depth of 4 to 5 inches.

Test trenches 2 and 3 (Fig. 2) were cut across two of the small mounds in

the central flat area to ascertain their origin or purpose. The original floor was easily recognized, but no trace of charcoal was found directly upon it. It is not known whether the structure had a roof but certainly none existed when the walls burned. The mounds, it was

Fig. 3: Test trench 1, showing the relations of wall, raised ledge, and drainage system.

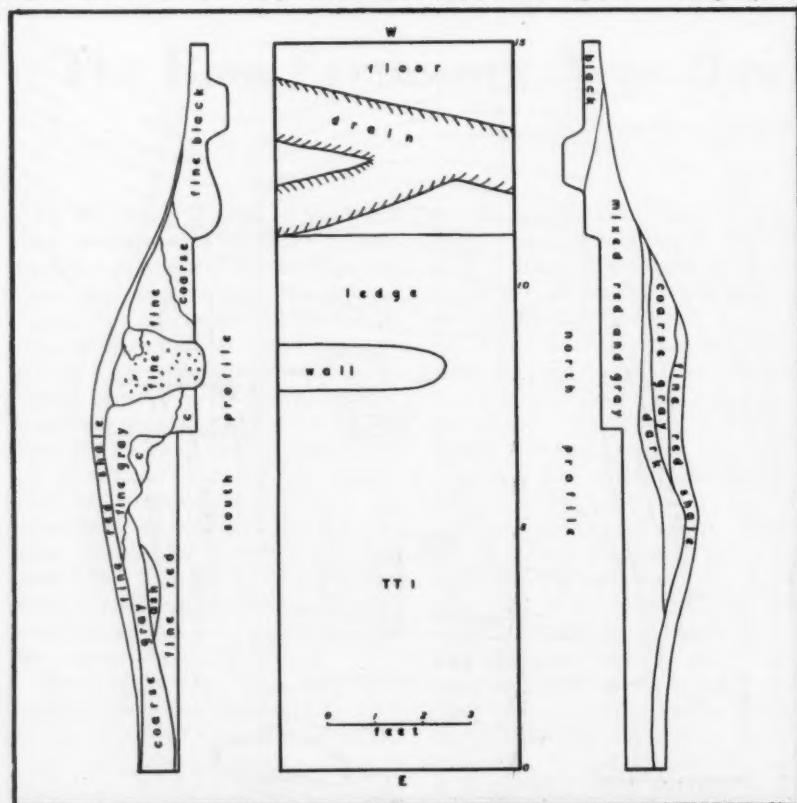


Fig. 6: Test trench 1, with the exposed drains and the wall trench filled by rainwater. The dry ledge is seen between them. Photo by T. Lee.

found, are adjacent to depressions and probably represent the digging by someone for trinkets or souvenirs, in relatively recent times.

Test trench 4 (Figs. 2, 5) were cut across one end of a small mound near the south side of the enclosure and into the middle of the south ridge. Charcoal was found on the original floor, but only when approaching the predicted position of the south wall. Again a drainage ditch was exposed, still wide but at this point very shallow. It ran directly against a low shale ledge corresponding to that along the east wall.

Conclusions

From the above evidence, in its relation to slopes and ridges, it appears that the original building dimensions were approximately 35 by 50 feet. The south wall was considerably longer than the north, thereby forcing the southwest and northwest corners out of square. Some indication of the height of the walls is given by the occurrence of charcoal on the original floor to a distance of six feet in from the shale ledge. Further details and exact measurements could be obtained by complete excavation, but it is not anticipated that much cultural material would be found.

It can be stated definitely that the structure was in no way associated with the Battle of the Long Sault. It was not a palisade and it was not a defensive work. It was instead a planned semisubterranean enclosure, roughly rectangular, with at least one doorway, a nearly level floor with a system of drainage ditches, and with a raised ledge around the inside of the walls. The construction of the walls remains unknown other than the fact that poles were used in some fashion with the bark still on them. Earth from the enclosure was piled against the outside of the walls. After the poles burned, some of the earth fell inward, gradually producing the rounded surfaces of the present earth ridges. No roof was then in position.

The structure was made by white men. The local traditions which center on the Ross farm do not explain it. The knowledge of its origin had long been lost before the arrival of the Ross family in 1840. The drainage system on the floor suggests that it was in use for at least a short time, while the absence of cultural material in the trenches argues

for a short occupation. Only further excavation can settle this point.

It is probable that the structure had some connection with the early fur trade, yet it could not have been a trading post, as it was not approachable from the river. The Little Rideau enters the Ottawa as a waterfall. The high and vertical banks of the Ottawa, often undercut at this point, would make landing impossible in the racing current. Why, then, would such a structure be set up here at the midpoint of a mile-long stretch of roaring rapids?

In running the six miles of the Long Sault by canoe, the best passage lay close to the south bank of the river, where the swift and deep waters are not churned into foam by thousands of great boulders, as they are a short distance out.

Portaging up the river, however, was combined with towing wherever possible. Towing was clearly impossible opposite the earthwork, although it could be resumed just a half-mile upriver. Because of this, it is generally believed that the north bank was the one used although no early writer troubled to mention this. The water there, although broken by masses of rocks, is shallow enough at most seasons for towing. The low bank, however, was of little value, because of the overhanging branches and fallen trees.

A point often overlooked in trying to establish the portage route is the fact that the south river bank was relatively free of the huge boulders which littered the north bank. One of the worst difficulties met in portaging was the carrying of canoes over or among masses of great boulders in the woods, as noted by Chevalier de Troyes in 1686.

Again, a big advantage lay with the south shore in the last mile at the head of the Long Sault. There, where great rock ledges, boulders, and raging waters make towing impossible in the main river, the south side provides separate channels which bypass the frightful rapids known as the Cellar.

With these points in mind, I suggest that portaging was performed on either side of the river according to the season and conditions of temperature, volume and speed of the water, weather, ice and other hazards.

Therefore, it is not unreasonable to suppose that the earthwork represents a mid-point shelter for the safekeeping of goods while portaging past the only long stretch of rapids on the south shore.



Fig. 4: The northeast corner of the earthwork, with cedar stumps on its crest. The Ottawa River and the rapids of the famed Long Sault are visible in the background. Photo by T. Lee.

Fig. 5: Test trenches across the east ridge and within the enclosure. Cedar stumps rise from the old floor. Photo by M. Barbeau.





1000 B.D.

(Before Disney, That Is)

By Carl B. Compton
Director, Instituto Interamericano



A thousand years before Walt Disney developed his delightful cartoon creatures based on forms of animals, the people who lived in what are now the States of Zacatecas and Durango, Mexico, were decorating their pottery with equally delightful but somewhat more stylized animal figures. Just as Disney originally did, these early farming people of northern Mexico avoided drawing the human figure almost entirely, though they depicted nearly every type of animal to be found within their territory.

They even drew or painted a great many which were not found in their immediate environment. Also, like Disney's, a great many of them seemed to be pure invention.

The alligator is not to be found within areas occupied by the Chalchihuites culture, for example. (This name is the one given by the archaeologists to the peoples of northern Mexico who painted these designs on their pottery.) Yet there are many stylized figures of alligators among these animal forms. These would seem to indicate that the Chalchihuites people had some trade and contact with the people of the present state of Nayarit, which is not very



far away to the southwest. Because a Nayarit figurine representing a human being was found at the Navacoyan site in Durango, we know that there must have been contact. These people apparently had certain religious rites involving the crocodile. Even today it is said that such rites are practiced.

Perhaps the most picturesque of these little figures are the small, common animals. They were painted with a type of reddish brown lacquer on a cream or tan pottery. These animals were undoubtedly quite common in the fields and may have formed an important part of the diet of these farmer hunters. By far, the most numerous figures are those representing rabbits, although the fox, the deer, and the opossum are not far behind. Bird forms are encountered as well as occasional representations of bees, butterflies, and other insects. Porcupines are common.

The most curious and puzzling figures are those which seem to represent either combinations of animals of pure inventions. By using one's imagination, some of these figures might be said to represent tadpoles, frogs, lizards, snails, or water insects of some sort. Even an active imagination, however, probably cannot explain satisfactorily the basis for a few of the forms.

Among the many misconceptions which the general public has about the pre-Columbian Indians of the Americas is that they were a solemn, serious people with no sense of humor. Another widespread misconception is that they

were a savage, bloodthirsty breed who occupied themselves with making war upon all and sundry.

The truth is that there were a very great many different Indian groups in the Americas at the time of white contact. They were as different from each other as the various peoples of Europe and Asia. Some of the Indian tribes were, in truth, rather dour, serious and morally straitlaced. Some, admittedly, were rather bellicose and battle-oriented. It is very likely, however, that the peoples of the Americas, by and large, were far less warlike than the peoples of Europe and Asia from A.D. 500 to the time of the Conquest.

One need only examine these figures painted on the pottery to see that these people not only had a delightful sense of humor but also a deep feeling for their environment. This is true not only of the Chalchihuites region, but much farther north in the land of the Hohokam of Arizona. [The Hohokam (or Hohokan) is an ancient culture of the Gila-Salt River drainage area. Their modern descendant is the Pima-Papago culture. They were a desert people who lived between A.D. 1 and A.D. 1400. Remains of a Hohokam site may be seen



at the Casa Grande National Monument, near Casa Grande, Ariz. The name of this group is, by the way, accented on the last syllable, ho-ho-CAHM.] We can guess, from some of the figures on the pottery, that they probably had a rich folklore and a satisfying ceremonial life.

In passing, since it has been mentioned, we might note that the figures on the pottery of the Hohokam, in many cases, are almost identical with those of the Chalchihuites pottery. Moreover, the humorous spirit and inventiveness of the Hohokam figures parallel that of the Chalchihuites.

Many persons, if they have given the matter any thought at all, have the impression that the Indians of pre-

though usually they prefer to travel cross country where the chance for killing game or gathering seeds or fruits is greater. Aguascalientes is hundreds of miles from the mountains of Chihuahua where the Yaqui live yet they frequently cover this distance on foot.

Columbian America, before the coming of the horse, were a sedentary, stay-at-home people. While, as a group or tribe, the agricultural Indians of the Americas tended to occupy a rather limited area, individual members of the group wandered far and wide. They made contact with other groups, and other culture patterns. Even today, there are many such groups who have avoided the white man's way of life completely. They still remain primitive farmers that their ancestors were before the coming of White Man.

Among these groups are the Yaqui, some of the Cora, and some of the Huichol, all three groups of northern and northwestern Mexico. On many occasions, the writer has seen pairs of Yaqui men in Aguascalientes and Zacatecas, dressed in the Yaqui costume and bearing bows and arrows. One sees them occasionally on the highway

The writer has encountered the Huichols in Torreon, in one case a father and mother with a small baby. This is hundreds of miles from their home. One is constantly amazed at the evidence from archaeological investigations which indicates the extent to which the early peoples of Mesoamerica wandered about the country from the earliest

Dr. Carl B. Compton *A Biographical Sketch*

Carl Compton was born in Esterville, Iowa, in 1905, the son of an officer of the Public Health Service. Travelling with his father who set up regional offices for veterans after World War I, Carl learned at an early age to love travel and adventure. In school he studied not only anthropology but also art and the sciences. He has attended Notre Dame, University of Paris, Art Institute of Chicago, Indiana University and the University of Chicago, and has travelled throughout Europe and Mexico. His degrees include B.A., B.F.A., M.A., M.F.A., and Lit.D. He has taught history, sociology, and anthropology as well as every aspect of the graphic and plastic arts. He can translate and review material in seven European languages. Dr. Compton is well qualified to write on many subjects.

times. This desire to wander is still strong in peoples of Mexico. It is a source of frequent comment among tourists.

This matter of the "itching foot" or wanderlust has been mentioned at some length to explain the fact that the figures about which we are speaking indicate that the painters were no exception. They must have visited the Pacific coast, probably Nayarit, where alligators are found. We know from other archaeological materials that there was considerable trade and commerce with Sinaloa, across the high Sierra on the Pacific coast of Mexico. We are reasonably sure that there was contact between the Arizona Hohokam peoples and those of Chalchihuites. Some recent, as yet unpublished evidence from the State of Guanajuato indicates that there may possibly have been some contact or trade with peoples far to the southeast.



Just who these people of the Chalchihuites area were is unknown and will likely remain forever so. Cultures arise, flourish, and, for one reason or another, decline. The people wander away, are broken up by wars or plagues, or gradually become absorbed by other ethnic groups. All we know for sure is that sometime, perhaps between A.D. 700 and A.D. 1100, the Chalchihuites people made some charming drawings.



Thousands whiz by daily on the Los Angeles-Las Vegas highway — few know about or turn off to visit the —

Toltec, Mojave Desert Mine of the Ancients

By Mary Frances Berkholtz

The Toltec Mine, located on the great Mojave Desert, is the site of the only aboriginal turquoise quarries in California. These ancient diggings came to light in 1897 when T. C. Basset was prospecting the area in search of turquoise. He had observed a small hill where the float rock was seamed and stained with blue. On digging down he uncovered a vein in a white talcose material that enclosed nodules and small masses of the turquoise. Fine gem material was found at twenty feet below the surface.

It was here also that the first evidence of the ancient Indians was discovered, two aboriginal stone hammers. They were of the type usually found at all the turquoise localities in the southwest. Because of Mr. Basset's find, the claim was called the Stone Hammer Mine. Commercial mining soon followed his discovery and the famous Toltec mine was developed.

Gustav Eisen, member of the California Academy of Sciences, joined an expedition to the area in 1898. A complete account of his observations was published in the San Francisco Call in March of the same year. Some thirty years later, the San Diego Museum pub-

lished the findings of the archeological reconnaissance of the workings and associated remains (M. J. Rogers, 1929A).

The turquoise District, as the area is now known, occupies a region roughly fifteen miles long and four or five miles wide. The area is volcanic in aspect, being largely covered with outflows of basaltic rock reaching outward from a central group of craters. These flows extend for many miles in all directions. They appear as long low ridges, separated by valleys and canyons of rugged character. Among these basaltic rocks and in the valleys are low, rounded hills consisting of decomposed sandstones and porphyries. They are traversed by ledges of harder crystalline rocks, quartzite and schists. In these canyons and on the sides of the hills the old turquoise diggings are found. They appear as saucer-like pits.

W. R. Rogers reported a total of two hundred aboriginal pits at the Toltec locality in 1929. The original quarries, at the main Toltec mine, have been obliterated by the commercial mining developments in recent years. Tremendous dumps cover considerable terrain. The general area however, is dotted with pits and they may be easily reached by hiking over the hills and canyons.

From all indications, the workings were exploited on a large scale and over a long period of time. Quite a number of natural shelter caverns have been found in the canyon walls. Their smoke-blackened walls, plus the hundred of petroglyphs carved on them, give rise

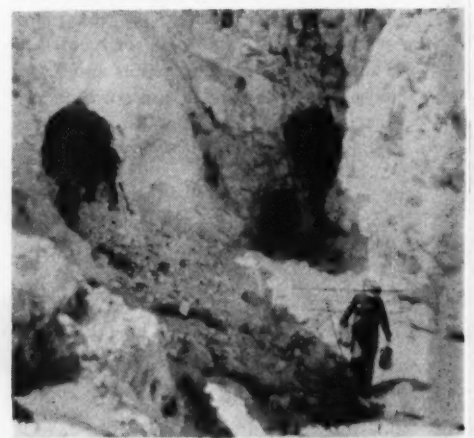
The aboriginal quarry is reached by this long steep trail in barren desert country. The old dump is quite extensive as shown in this picture. Artifacts and turquoise are found here.

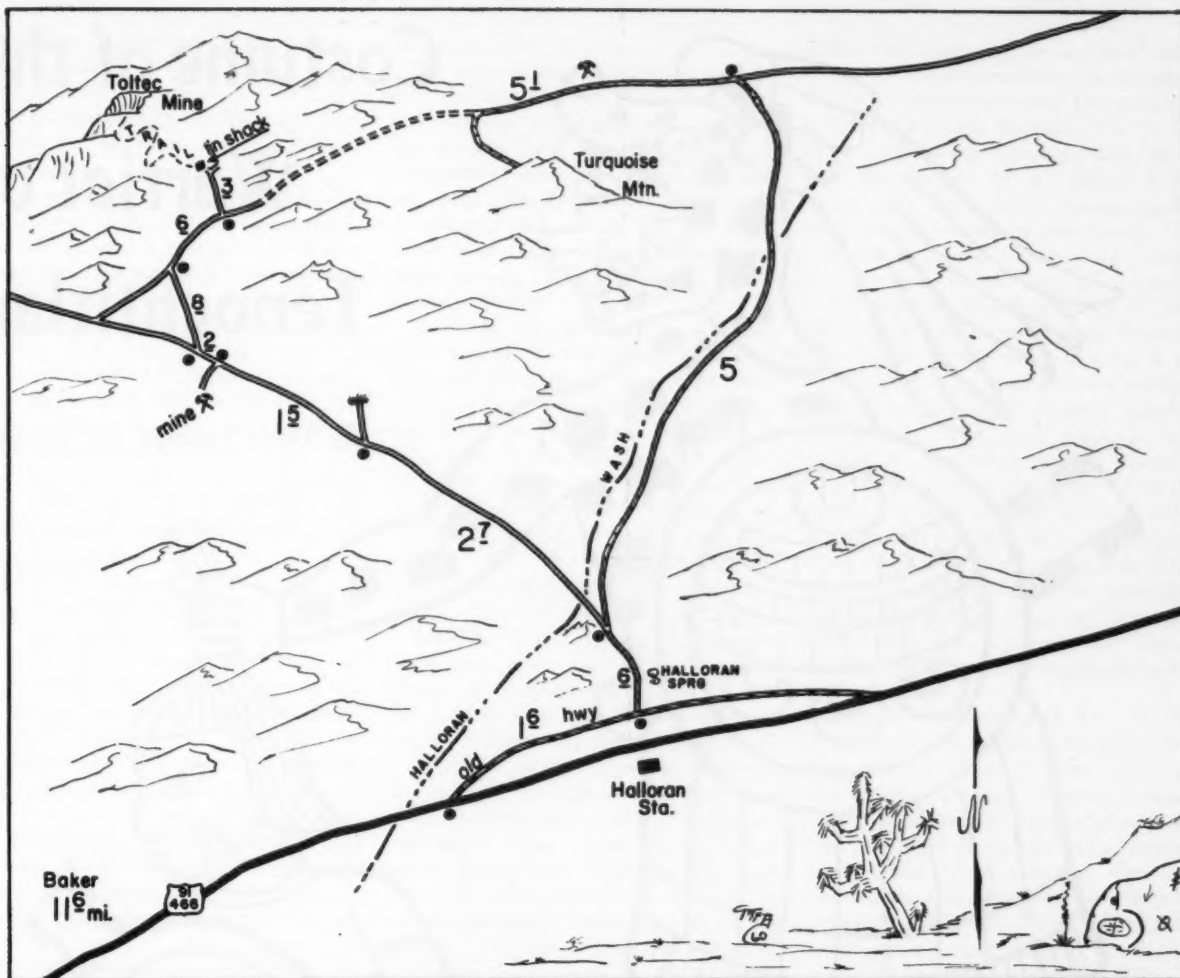
The quarry floor is slowly being covered with eroding debris and the mine tunnels are caving in. This is a very dangerous site at the present time. Care must be exercised when exploring this area.

to the assumption of long occupancy. Scattered potsherds in which the miners probably cooked their food, crude mining tools—stone hammers and picks, and turquoise carapace "shovels" for excavating the crushed rock have been uncovered in the caverns. Most of the tools have been carefully wrought and polished from basalt or trap rock. Many were of considerable size.

The distinct type of the artifacts, associated with the quarries or pits, is of the Puebloan type and not that of the simple desert Indians of California. Hence, it has been assumed that the local desert dwellers did not carry out the vast mining operations. They were done by the more highly cultured Pueblo peoples from the south (New Mexico and Arizona) who seem to have made expeditions in force to the turquoise locality on the Mojave Desert.

The abundance of petroglyphs in the area is rather remarkable as they number in the thousands. They have been carved in the hard basaltic cliffs and on large boulders, of the same material, that had fallen into the canyons. Some are combinations of lines, dots and curves; others represent animals and men; a third very peculiar type, is that





of "shield figures," in which complex patterns of lines, circles, cross hatchings, etc., are inscribed within a shield-like outline several feet high. Several "Aztec" water symbols, indicating springs, have also been noted.

One of the most interesting facts concerning this region is the legend that still exists among the Indians today. It was told to Mr. Eisen by Indian Johnny, son of the Pieute chief, Tecopa, who in turn had learned it from his father.

"Thousands of years ago this region was the home of the Desert Mohaves. Among them appeared a strange tribe from the south, searching for precious stones. They made friends with the Mohaves, learned about the mines and obtained great quantities of turquoise. They showed the Mohaves better methods of mining and taught them rock carving. These people were unlike any other Indians. They had light complex-

CONTINUED ON PAGE 34

Mary Frances Berkholz

A Biographical Sketch

Though born in California, Mary Frances Berkholz spent the first eight years of her life in the mining towns of Colorado's continental divide country. Her backyards were the mining dumps of Ophir, Telluride, Cripple Creek, Ouray, and Breckenridge. Her interest in our earth began there and later led to her college major in geology.

Exploring and mapping our southwest desert country has been a way of life for Mary Frances since college days. She began writing travel articles to share the wonders of her beloved desert with others. Later, in 1952, she began to write field trip articles for *GEMS & MINERALS*. In 1953 she became field trip editor for that magazine.

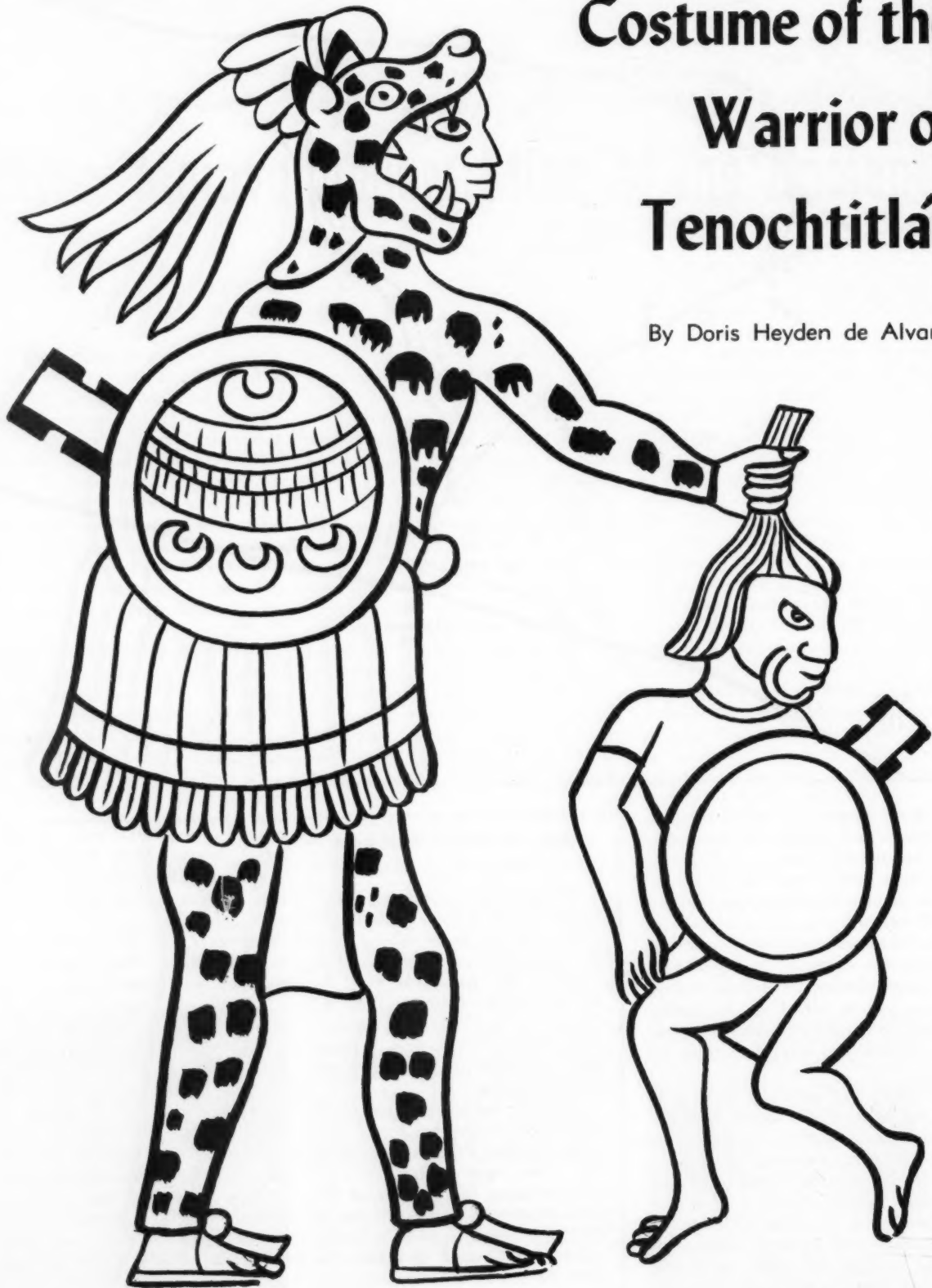
During the last seven years she has

traveled over 200,000 miles in California, Nevada, Utah, New Mexico, Texas, and Oklahoma, looking for gem fields, geological points of interest, ghost towns, mines, and archaeological sites. Her travels on the western Mojave Desert have been published as "Treasure Map of the Great Mojave Desert," obtainable through SCIENCE OF MAN. (\$1.00)

The Mojave Desert is her home. There are few miles of it that she has not trod. Besides Mary Frances, only one other woman, Nell Murbarger of *Desert Magazine*, habitually travels the desert alone. Each October you will find her pickup loaded with cameras, rock pick, and her trusty companion, Sky, a hundred pound malemute, heading out on new desert trails. She keeps at it until the heat, beginning in May, sends her home to her desert mountain top at Littlerock, California.

Costume of the Warrior of Tenochtitlán

By Doris Heyden de Alvarez



Tiger Knight taking prisoner.

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Soldiers of today dress in the most unobtrusive fashion possible. They clothe themselves in dull khaki and at times paint themselves like the landscape, for, unlike the warriors of Tenochtitlán, their object is not to be seen.

The opposite picture is presented by the warrior of the ancient Aztec capital. The object of his costume — in this case we cannot say uniform — was to terrify and impress the enemy as well as to prove, vividly, his rank as a fighter. And if he had been awarded a special standard for bravery, he went into battle with this fastened to his back, announcing his distinction to friends, enemies and to the gods. The fact that the size and form of this standard cannot have made fighting any easier proved even further his competence in his field.

The Mexicas (or Aztecs, as they are more commonly known) had a reason for every mantle or earhoop they wore. Even the design woven on a cloth was governed by rules of their society. In no group is this significance of motif as clear as in warriors' dress. It was possible to tell at a glance from which city-state a man came, how many prisoners he had captured, whether he were a captain, and in how many wars he had fought. We could say that hieroglyphs were not limited to monuments or codices but were even carried into apparel.

The profession of warrior was one of the most honorable and began, so to speak, at birth. As soon as a child was born he was placed in a cradle. After four days the midwife carried the naked babe to the patio of the house. Here he was bathed in an earthenware tub that had been placed on a mat of rushes. Three boys sat opposite, eating *ixicue*, a mixture of toasted corn and boiled beans. At a signal from the midwife, they loudly called out the name (previously chosen) to be given the child. The symbol of his father's profession was presented to a boy; in the case of a soldier it was a weapon. When the umbilical cord of a male child fell off it was buried with shield and arrow symbols toward the direction from whence the enemy was expected to come.

Twenty days later the parents presented the child to the *telpuchtlato* (instructor of youth) or *teachcauh* (schoolmaster) with suitable gifts. When the child was of school age he was turned over to this master for instruction, together with other boys with the same

aim.

The warrior, or *teyaotlanime*, went to war wearing his magnificent costume and carrying only his arms — usually one, a bladed lance or sword. The latter, *maccuahuil*, was about three-and-a-half feet long and four inches wide, with razor-sharp flint knives set all along either side. This efficient weapon was bound to one arm by a cord to avoid losing it in battle.

A youth, apprentice to the warrior, accompanied him and carried his equipment and other arms. The youth wore a simple tunic, unspectacular but practical because it was quilted and therefore difficult to pierce. This quilted armor "covered the whole body like an old-fashioned union suit" and "proved so effective a protection against clubs and missiles that the Spaniards rapidly adopted it, extolling it as cooler and lighter than steel armor." (Vaillant.)

Warriors rose in rank according to their prowess on the field, as they do today. Each capture they made, each act of distinction, gave them a different device or insignia, a more splendid costume. The warrior's young assistant, for example, would be awarded the first grade for bravery in taking a prisoner (prisoners were taken for sacrifice rather than killed in battle). This was a mantle with insignia of flowers, called *tiacauhlatquil*, "brave man's dress."

The second grade that was bestowed upon the brave youth by the lords of Mexico, for having captured two prisoners, was a square mantle of orange with a red border and the insignia on his shield which has a red background with a black triangle on the lower part and four black bars. Long red feathers hung from the shield.

For having taken three of the enemy, the soldier was given his *ecailacatzcuzcatl* — "wind twisted jewel mantle." His device was now the fantastic "fire butterfly." Sahagún describes two butterfly devices. Of the first, he says that it was "made in the manner of the figure of a devil, of rich feathers and had the wings and tail like a butterfly, of fine feathers, and the eyes and nails and feet and eyebrows, and everything else was of gold, and on the head of this they put two bunches of quetzal feathers, like horns." The second device was also like the "image of the devil," with face, hands and feet, and eyes and nose devil-like and of gold, with the wings, tail and body worked in beautiful feathers in green and blue, with quetzal "horns." According to the Mendocino

Codex, the butterfly device was the symbol of the *chinampaneca*, the people who lived in artificial island towns, such as Xochimilco and Mixquic. The "satisfied eagle" shield was used with this, with the insignia of an eagle's foot bound with four sacred thongs, into which two eagle feathers were placed.

When the rising warrior had taken four prisoners he was awarded a black and orange mantle with a border of red stripes and "eye" or moon-glyph design. This half-moon was worn in gold as a nose ornament by warriors and nobles and its form was used on many shields and mantles. The moon glyph is the symbol of Ometochtli, god of pulque. It is worn by gods of this intoxicating but once ritual drink and by Tlazolteotl, earth goddess, originally a Huastec deity. With this shield and mantle was worn a suit made of feathers representing tiger skin. The same suit made of ocelot skin was reserved for Tiger Knights, members of an organization of noble warriors.

After he had captured five or six of the enemy the soldier was given the title of Otonti, plus the net device, a tall oval structure with a network center, with a medallion and crest of plumes at the top. When the soldier had captured many prisoners in different wars he received the title of *quachichili* (which means "ridge of hair," and he combed his hair in a definite ridge). His shield device denoted his prowess. This is the Greek fret which, with small variations, figures in most of the tribute lists, to a total of 84. The fret was a favorite pre-Conquest design. It was frequently used on pottery and reached its climax as decoration in the splendid stone mosaics at Mita.

When a warrior had not only climbed the different steps required to use the costumes and insignias mentioned, but had acquired even more fame in battle and therefore a higher rank, he was called *tlacacecatl*. This entitled him to wear the extraordinary *quetzalalpiloni*, twin tassels of quetzal feathers adorned with gold and tied to the hair with red leather thongs. The type of pony tail worn by warriors was identified as a "column of stone."

As a soldier advanced in rank, he wore more jewelry. The officers used not only a magnificent gold and turquoise ear ornament, but a fine long labret as well.

"In war they used conch shells to sound the (call to) arms, and trumpets; they also used little gold flags, which,



Feather standard attached to warrior's back.

while sounding the trumpets (and shells) they raised them in their hands for the soldiers to begin the fight." (Sahagún.) The soldiers, handsomely arrayed, painted their bodies black, less the face, but they did adorn this with a few black stripes on which were sprinkled grains of pyrite.

Most of the information available on warriors' costumes comes from the Mendocino Codex, part of Moctezuma II's Tribute Roll. This codex was once part of the sizable collection of early Mexican documents belonging to Lorenzo Boturini Benaducci whose collection was unfortunately expropriated and allowed to fall into ruin. The Mendocino, now preserved in Mexico's National Museum of Anthropology, is part of what has been saved of Boturini's documents.

According to the Tribute Roll, the main item of tribute was wearing apparel, as cotton could not be cultivated in the Valley of Mexico because of the cool climate. Feathers were of extraordinary importance, being worked into the cotton costumes with such skill that the result resembled magnificent birds in varied forms and colors. War tunics and accessories of feathers were in third place on the tribute list. From 371 towns, Moctezuma II collected these items made of feathers, for warriors, once a year:

War dresses	625
War tunics	40
Headaddresses	466
Standards	200
Shields	665

Aside from these, there were sacks of feathers of all types. The most esteemed was from the quetzal bird, although many came from hummingbirds and others of splendid color, eagles, and also ordinary feathers which were dyed. The contents of these sacks added up to about 30,000 handfuls of feathers contributed annually.

Not only were birds captured in the forest, but bird farms were maintained to help supply this all-important element. The high value placed upon feathers is shown by the fact that one feather mantle was valued at 100 canoes, while a cotton mantle was worth only one canoe. Thirty large cotton mantles were equivalent to one ordinary slave, or 40 mantles to a slave who could sing or dance. A feather mantle must have been worth several slaves, placing the value of bird life above human, at least in the case of slaves.

Feather mosaic work is definitely Mexican in origin. It was so esteemed

that it continued to be produced after the Conquest in the form of religious images instead of costumes for soldiers and nobles.

Clavigero, in describing colonial mosaic pictures, mentions that there was an artisan for each piece of mosaic, who worked so carefully that at times he took an entire day to choose and apply a feather. "The Mexicans liked these feather works so much that they esteemed them more than gold. Cortés, Bernal Diaz, Gomara, Torquemada and all the other historians who saw them could not find expressions with which to praise enough their perfections."

Many types of feather headdresses are shown in the Tribute Roll. The only actual specimen of this period, however, is in the Natural History Museum in Vienna. This was a king's headdress worn behind the head and not on it. It was sent by Cortés to his sovereign. A copy is in the Museum of Anthropology in Mexico. The original is composed of about 500 quetzal feathers, standing up about 36 inches in semicircle.

The Tribute Roll lists four types of standards although there are others not identified. The Florentine Codex shows more. These standards were mounted on light bamboo frames and were strapped to the wearer's back. The identified types in the Roll are the *tlauizmatlatopilli* or net device; *itzpapálotl*, obsidian butterfly; *xolotl*, monster or dog; and *quachichiquilli*, crest.

The standards and other items worn by the leaders were more elaborate than the ordinary ones. For example, the peaked headdress that reminds one of those worn by ceramic figures from the west and Huasteca region of Mexico were quite simple for regular soldiers. But, the captain's was more highly adorned with a rosette and a type of inverted cup on the peak from which flowed green quetzal feathers. This was worn with the gold "moon" nose ornament and eardrop in form of raw cotton.

The only existing example of a "moon-glyph" shield, called "Shield of Moctezuma," is now in the National Museum of History. The symbol of Tenochtitlan, Aztec capital, it had seven tufts of eagle feathers.

Xolotl was the god of the ball court (ritual game reserved for nobles and warriors), of twins, and monstrosities. The turquoise blue standard in honor of this god is surmounted by the emblem of Xolotl, a dog's head with yellow face and ears simulating dead flesh. The



Warrior wearing *quetzaltlalpiloni* in his hair and a labret.

purple head represents death. A human ear is here, and attached to it is the curved eardrop which is always associated with Xolotl. This was "the dog who goes down with his master to the dead." The tassel of quetzal feathers is suspended from the back, the panache that is found on all standards and headdresses except for the peaked Occidental style hat. (In this case the captain's hat does have the plumage). The nose ornament of gold in moon shape is worn with this outfit. The insignia on the shield is the Greek fret.

The pre-Conquest custom of absorbing gods of conquered peoples into the pantheon of the conquerors may be seen by attributes of Tlazolteotl, the Huastec earth goddess, on Mexica war dress. As far back as the times of Huemac, Toltec king of Tula, experiments were being made with the cult to Tlazolteotl, then foreign to the Toltecs. Among the war dressess demanded by Tenochtitlán of their tributary and neighbor Tlatelolco was one called *Iztac Uaxtecatl* because of its similarity in form to that worn by

Huastec servants of *Teteo innan* (Tlazolteotl) at a feast in honor of this goddess.

The *teyaotlanime*, after having distinguished themselves in battle, could belong to one of three orders. Cooper Clark calls these the Principals, the Eagles, and the Ocelots or Tigers. Members of these orders fought prisoners tied to the gladiatorial stone at the *Tlacaxipecaliztli* fiesta in honor of Xipe, God of Spring. Caso mentions that to belong to the Eagle Knights or Ocelot Knights, the warrior must have Toltec blood. Valiant commoners rose to membership in the *Orden de los Pardos*. The war dress of an Ocelot Knight was of real ocelot skin instead of feathers simulating this.

Distinguished warriors and leaders wore the most spectacular dress. When soldiers returned from war the Lord of Mexico "gave presents to all the new soldiers, especially to those who had done notable deeds; he gave them adorned mantles and *maxtles*, and license to use them from then on, and he also gave them license to use labrets

and precious stones and gold and silver, to each one as he distinguished himself in war, and he gave them names of nobles and devices or arms so they would be honored and known as valiant. He also gave them permission to use tassels of gold and feathers on their heads, taking part in the sacred song and dance fiestas."

These few words written by Sahagun show us clearly that the use of jewelry and fine clothing was not capricious but was definitely a right that must be earned.

With license given a warrior to dress as one of the brave, he wore a mantle of embroidered cotton, frequently interwoven with feathers or rabbit's hair. "They used a type of rich mantle that was all tawny and had the face of a monster or devil in a silver circle on a red background; it was all covered with these circles and faces and had a border all around the edge; the inside part had a work of 's's' contrasting with square spaces, and some of these squares were filled and others were empty; on the outside this border had solid spheres not very close together. These mantles were used by the lords and they gave them as part of dress to persons notable and outstanding in

war." (Sahagún.)

The warrior's loin cloth was also of highly embroidered cotton. His sandals were of ocelot skin fastened with red leather thongs and they had deerskin soles. He wore the quetzal feather tassels in his hair. His jewelry was magnificent. It included necklaces of the treasured green jade, of gold, and of shell. Ear plugs of gold, jade or turquoise were worn in his pierced ears. His nose was pierced, too, and the labret was used as lip ornament. The labret was of amber, jadeite, or rock crystal and was several inches long. It was hollow and held a brilliant blue feather which "made it look like sapphire." The small obsidian *bezote* was used to plug the hole when the labret was not worn. Gold half-moons hung from labrets, or were worn as nose ornaments. Bracelets for the right arm were often made of turquoise mosaic with rich feathers stuck into them. For the left arm, turquoise bracelets did not carry feathers. Greaves of gold or of ocelot skin with gold tassels were worn on the lower leg.

The warriors used a "helmet of very red feathers, that they called *tlauhquechol*, with gold, and around the helmet a crown of fine feathers, and from the middle of the crown rose a

bunch of rich feathers called *quetzalli* like panaches, and hanging from this plumage toward the back was a small drum, placed in a ladder-like structure such as is used for carrying objects, and all this was gilded. They carried a cape of reddish feathers that reached halfway to the lower leg, all covered with little shells of gold; and they used short skirts of rich feathers." (Sahagun.)

Senior priests accompanied the warriors to animate them and to perform priestly duties in the field. Like the soldiers, they began wearing plain tunics and were given devices, insignias and elaborate dress as they ascended, for the priests captured prisoners as well as the warriors. In fact, many leaders were both soldiers and priests. Priests and judges, according to the Tribute Roll, used different hair styles from other warriors, however.

Although this paper is concerned with the warrior of Tenochtitlan, it is interesting to note that the murals of Bonampak in Maya territory show some parallels between the Mexica and the Maya. Jaguar skin (the Maya equivalent of the highland's ocelot) was reserved for the *halach uinic*, supreme leader, and others of high rank. Sandals of jaguar skin with high heel guards (a sign of caste to this day among the Tzotzil), somewhat similar to those used by distinguished warriors in the Mendocino Codex, may be seen in the murals. Warriors of Bonampak are arrayed in splendid costumes, jewelry and paint, and feather back-frames are worn by underchiefs. These frames are seen also on Maya stelae. One of the figures at Bonampak carries a weapon set with flint points, which Roys suggests may be the forerunner of the Mexican *macuahuitl*. Bonampak shields are decorated with feathers and tassels.

One Bonampak soldier has three glyphs painted on his arm. Another has one on his thigh. Tattoo has been used in Mexico since archaic times, and possibly a warrior's tattoo was a sign of distinction.

Whether in Tenochtitlan or in Bonampak, the warrior, we may say, fulfilled the most glorious calling of his time—obtaining victims so that the sun and the gods might have their necessary food—palpitating hearts—and therefore the warrior who, according to these concepts, made the sun come up each day, earned the right to dress so elaborately that he was surpassed only by his king and by the gods themselves.

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Indian City States

When the Spanish explorer Francisco de Coronado made his epic crossing of the Great Plains in the middle of the sixteenth century he encountered a strange little "kingdom" of small towns. There were, he reported, perhaps as many as 25 villages in an area of a few hundred square miles. The dwellings consisted of pole frames covered with grass or, in some cases, bison hides. Each house had a family subsistence garden in which maize, beans, and squash were cultivated.

As described in later testimony of a member of the Onate expedition: "The huts were grouped in barrios of 30 or 40, the huts being about 30 to 40 paces apart, and the barrios were separated by two or three hundred paces." Some of the villages, it was estimated, had as many as 200 houses. This was about the closest approach to settled community living found by the Spaniards in the Plains region. Coronado and his men passed nearly a month in the area and apparently kept on friendly terms with the villagers who combined gardening and bison hunting as a way of life.

From the scanty evidence of the Spanish records an effort is made to locate and — to some degree — reconstruct this "grass house kingdom" of Quivira by Dr. Waldo R. Wedel, Smithsonian Institution anthropologist and specialist on Great Plains archaeology in an inclusive study of Kansas archaeology recently published by the Institution's Bureau of American Ethnology.

All the available evidence indicates, Dr. Wedel says, that Quivira country was essentially the big bend region of the Arkansas River in central and southern Kansas. How long the "kingdom" endured cannot be determined, but various lines of evidence, the report says, indicate that the inhabitants were members of the Wichita Indian tribe or some immediate precursors in the same general group.

Coronado was not an anthropologist, but he left notable records of the peoples he encountered. From the Quiviran villages he visited, archaeologists have gathered pottery, stone and bone objects, chain mail, and other material, which greatly expand the information from the historical records. The Quiviran village Indians may have been driven

southward from the central Kansas region by the hostile Plains Apache from the west.

The available evidence, according to Dr. Wedel, points to occupation of the Kansas region by hunting and food-gathering peoples for several thousand years, beginning 10,000 years ago or more. About the beginning of the Christian Era, corn agriculture was introduced and spread along with pottery-making, into the western plains. By 1750, hunting peoples again dominated the region, but this time with the horse to provide greater mobility and organized warfare and hunting. Droughts probably occurred in prehistoric days, as they have since the White settlement, and may have compelled the prehistoric farmers to abandon the western plains for safer farming country in the east.

Greek Shrine Uncarthed

One of the world's greatest religious shrines for twenty centuries — dating from about 1800 B.C. — now has been uncovered and partly restored mainly by the efforts of Greek archaeologists. This has recently been reported jointly to the Archaeological Institute of America and the Smithsonian Institution in a lecture by Dr. George E. Mylonas, of Washington University, St. Louis, who has taken a leading part in directing the excavation of the debris-buried ruins of the great sanctuary of the Greek goddess Demeter at Eleusis, Greece.

Eleusis is now a small industrial town about 12 miles west of Athens. For about 2,000 years, extending well into the Christian Era, it was the center of the largely secret cult of the Greek goddess of vegetation and agriculture, upon whose favor all life on earth depended. There initiates of the cult and candidates for initiation into advanced degrees gathered yearly from all over the then civilized world. There they witnessed elaborate rites within the closely guarded walls of the great sanctuary.

According to the legend Demeter was found one day sitting by the well of Eleusis, forlorn and sad. Her daughter Persephone had been abducted by Pluto, king of the underworld. Demeter ordered the townspeople to build for her a temple in which she secluded herself

—with the result that all the vegetation on earth withered and all living things started to perish. This forced Zeus, king of the gods, to bring Persephone back to her grieving mother. A compromise was reached by which the daughter was allowed to spend nine months of each year in the upper world. This accounted for the cult's explanation of the seasons. Her annual emergence from Hades was spring. The period of her visit was summer when all nature flourished. Winter represented her return to Pluto.

The secrets of the cult were closely guarded. Nothing uncovered by the archaeologists to date has given any reliable information about them. The annual ceremonies at Eleusis, however, are believed to have been reenactments of the legend, reaching their climax with the emergence of Persephone from the mouth of a cave which has been located. Members of the cult presumably thought that they were witnessing an actual supernatural event.

But, says Dr. Mylonas, the ceremonies at Eleusis probably were much more than pagan rites. There is considerable reason to believe that the cult emphasized the concept of immortality, and it may have been of considerable significance in the westward spread of Christianity. With this, however, it began to decline and was forgotten after the first few hundred years of the new faith. The walls of the elaborate temple and shrines collapsed, and no effort was made to preserve them. Debris of all sorts accumulated over the site.

Greek archaeologists started work on the site on a quite limited scale, almost a century ago, but the greatest progress has been only in the past few years. One of the major revelations has been the great age of the ruins. Some of the objects uncovered can be dated with practical certainty as far back as 1800 B.C. Previously the great shrine had been presumed to date from about 660 B.C. This, however, now appears only to coincide with a period of great prosperity of the Demeter cult.

The excavations also have revealed that there was a succession of temples through the centuries, each one bigger and more elaborate than its predecessor.

Bronze Age Burial Found

A cemetery dating back to the middle Bronze Age has been discovered in the heart of Amman, Jordan. Excavators for the Jordan Antiquities Department found the relics while digging at the site of an ancient Roman citadel.

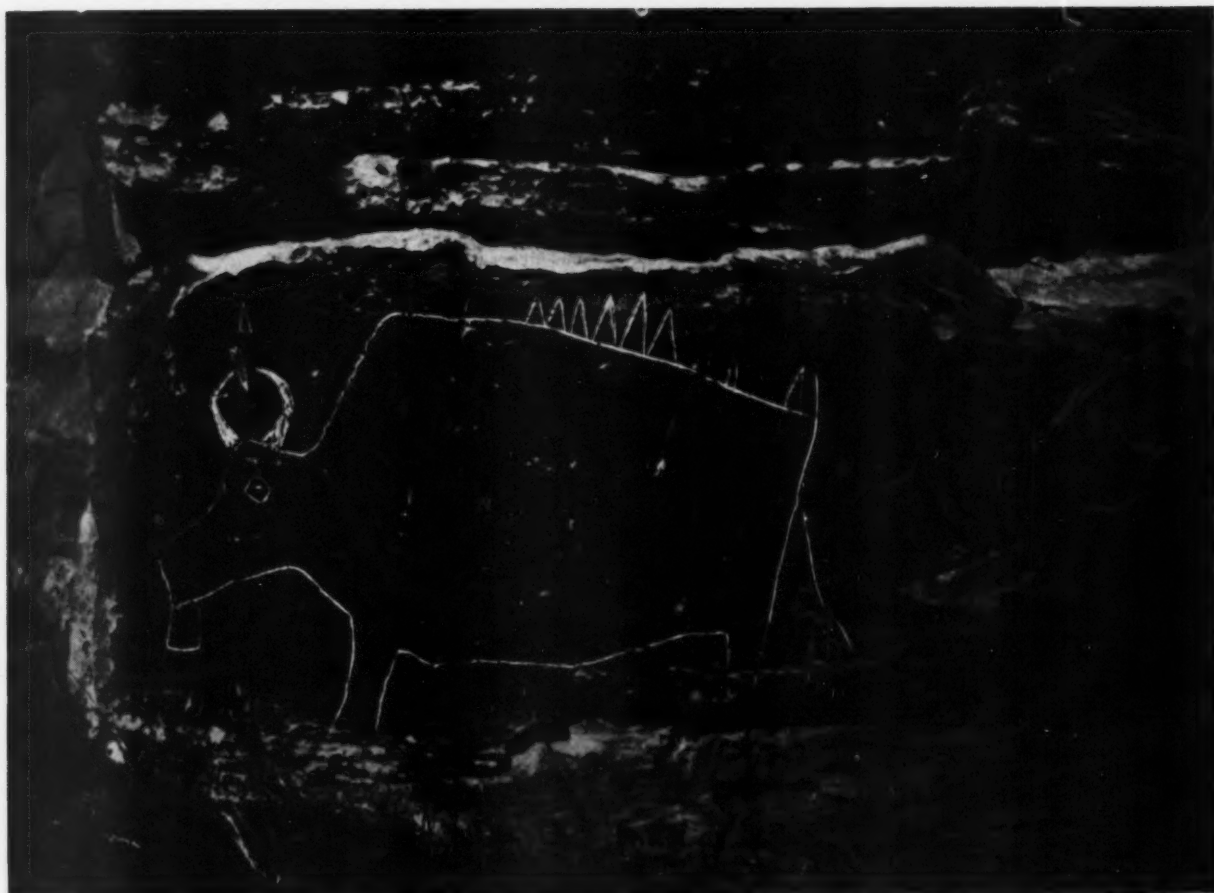


Fig. 1. A buffalo bull, four feet four inches in height.

PETROGLYPHS OF THE RUSSELL SITE

By Alex Richards and Dorothy Richards

Four miles northwest of the prairie town of Russell, Kansas, the Saline River has cut a meandering course through the bluff Benton limestone and the harder Dakota sandstone beneath. Here the sandstone forms a cliff some thirty feet high. For half a mile the hard stone holds the river to a northerly course before the stream moves past the farthest point to flow east to the Kaw and finally to the Gulf of Mexico. A talus slope, covered with native elm, hackberry, tangles of grapevines and thickets of chokecherry, currants, and gooseberry, leads from the shallow waters of the Saline to the cliff's base. Here a trail, beaten by the feet of animals and men through uncounted centuries, follows the line of the sandstone wall.

The animals have left burrows in the talus and debris in the cracks and crevices. Owls, hawks, vultures, and eagles have nested on the high ledges and the more inaccessible places. Cliff swallows have plastered and twittered and raised their young in gregarious groupings. The trees have cut long furrows in the sandstone with the tips of dancing branches as the prairie winds swept up the broad valley. There, as high up as he could reach or climb, man has left initials, carvings, and doodlings scratched in the thin, dark, iron oxide coating of the cliff into the softer stone beneath.

At the southern tip of the escarpment there is a semicircular cove about two hundred feet across. It faces west

to the Kansas sunsets. A spring ran here and a giant elm shadowed a wide area against the afternoon sun. In our time, cattle and horses came here to drink and the wet borders of the pool were flecked with the tracks of raccoon, opossum, skunk and coyote. During the day prairie chicken, bobwhite, thrasher and other birds dropped down to the clear water and flew quickly away. A smooth north wall invited the hand of man and its surface is covered with his work.

The oldest figures are the petroglyphs of the Plains Indians. Cut carefully into the stone are the outlines of a buffalo bull four feet four inches in height. (Fig. 1.) He faces west, head down. Between his horns, the figure

of a broken arrow may indicate that he was very hard to kill. There are eight triangular figures incised along the animal's back. These are in the wrong location to indicate the hairy mane of the bison. It may be that they indicate the number of tipis or families in the party that slew him. Usually the tepee figures have the framework poles at the apex of the petroglyph although plain triangles are sometimes found among them.

Later the figure of a man was superimposed upon the buffalo. (Fig. 2.) The incisions made by the stone tools of the later artist dig deep into the stone where they crossed the belly line of the animal. The body of the man is decorated with the criss-crossed lines typical of other figures in the area. The legs terminate in crossed lines with no delineation of feet. The right hand holds a bag which might be construed as a war bag but is more likely to indicate the bundle of sacred objects carried by a medicine man. No particular attention was paid to having the correct number of fingers on the hands which terminate the thin grooves that serve

to represent arms. Although the torso faces to the front, the head is turned towards the left. A mass of hair sweeps up, back and down to complete the picture. This figure is one of the more elaborate ones of the region. It must have represented a very important person.

There are many of the thunderbird tracks that are found almost universally in the plains area. They are both large and small. They were made by rubbing a short groove on each side of a longer one. A circle, some six inches in diameter is on the bison's hip but there is no indication of its meaning. Since none of the lines of these last figures cross those of any other, we have no idea as to their age in relation to the others.

Prints of hands, rubbed into the stone, are in evidence both inside and outside of the outline of the buffalo. Some of these have six fingers and some have five. Unless several members of the same family group had six fingers, there seem to be too many afflicted with this characteristic here. These hands may indicate the number of persons concerned

Hunting Petroglyphs Can Be Fun

This is the first of a series of articles by various persons on petroglyphs and pictographs in the United States. As there are many people interested in collecting these early Indian writings for study, one series of figure numbers will be used through all the articles for easy reference. Readers are urged to send in their photographs and articles for possible publication in this series. Ed.

with the slaying of the buffalo or merely the number at the site at various times. We have no means of dating these glyphs but the uniform weathering of the figures indicates that they were carved at nearly the same time.

Inside the animal's outline are the crude head and shoulders of another man. Near this, a faint object that resembles a small pine tree completes this group of Indian figures. Behind the buffalo a series of cross-hatchings indicates the body of another human figure but weathering has dimmed it so

Fig. 2. A figure of a man superimposed over the buffalo.





Fig. 4. Horses with long bodies and arched necks.

The Richards

A Biographical Sketch

Alex Richards, one of the authors of this article, was born July 13, 1907, and educated in the Kansas public schools. At McPherson College where he was enrolled in the study for the ministry, he met H. H. Nininger, a student of meteoritics, and the two became great friends. With Dr. Nininger, Alex travelled as a student of natural history over a great deal of North America. In 1929 he made a trip to Mexico City searching for meteorites, in a model T. In 1935 he married Dorothy Drescher whom he had met five years earlier. Dorothy was an avid student of natural history, having begun as a child with her parents as teachers.

Dorothy and Alex traveled widely hunting for meteorites. The advent of their daughter, Barbara, in 1937 caused a temporary halt to their wanderings. Both Alex and Dorothy have taught school in the fields of biology and science. With their daughter, they studied archaeology together at Mexico City College. Barbara, a University of Kansas student in archaeology, is now an exchange student in the same field at Exeter College, Devon, England.

Dorothy is (and has been for some time) the librarian of the City Library, Hays, Kansas. Alex was the field representative of the American Meteorite Museum (home of the Nininger meteorite collection) in Sedona, Arizona, until it was closed recently when Dr. Nininger retired. Both Alex and Dorothy alternate between their regular library and meteoritics work and their farm near Hays. They also lecture and work on the archaeology of the Great Plains area.

that we cannot be sure.

Inside the bison figure is a single date, Aug. 14, 1898. This and a few initials are all that the white man has left. It is doubtful if the man who carved these ever saw the work of the Indians. Many times it has been necessary to trace the outlines of the petroglyphs in chalk for students before they could discern them.

A hundred yards to the north are the outlines of a small group of men (Fig. 3). These figures seem to represent a meeting of various clans. Each individual is about two feet high and one has a buffalo headdress. Another holds a form resembling a bird carcass aloft in his right hand. His feet terminate in the three-toed form of a bird. A third figure holds the undulating line of a snake in his right hand. Perhaps the buffalo, eagle, and snake clans of some tribe held council here.

Close by the three figures is a single

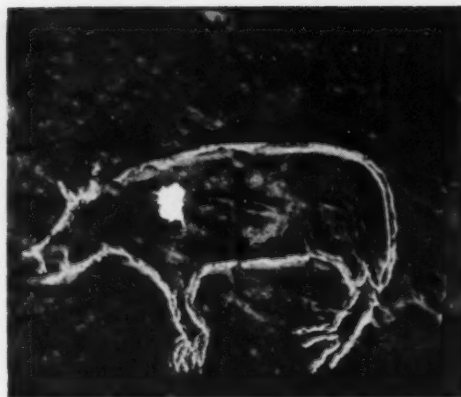


Fig. 5. Bear flushing a bird.

figure that shows the use of paint. The right half of the body is stained with a reddish oxide clay that is found a mile downstream.

Midway along the cliff, horses begin to appear (Fig. 4). All are in the same area and all have the same artistic style,

Fig. 3. Small group of Indians at a clan meeting.





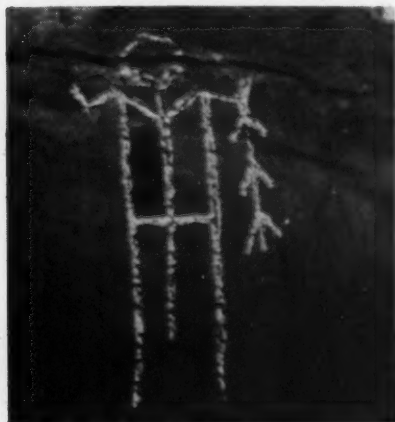
Fig. 8. Horse and rider, probably quite recent.

a long body with a much arched neck. Perhaps all of them were made by the same person or they may have been made at the time when horses first came to the plains. Very few Indians had seen horses and the artist may have been attempting to demonstrate their form and use to the others. Several show riders, one with a long feather headdress that reaches almost to the ground. No firearms are depicted so these must have been made very soon after the coming of the white man to the area.

A short distance farther north a bear lumbers across the cliff to flush a bird from its hiding place (Fig. 5). Probably the bird represents a wild turkey since they were common in this valley (Fig. 6). The form of the bear is fairly authentic, but to draw a bird in flight was beyond the skill of the artist. In reality the bird seems to be stopping instead of starting his flight.

We can only speculate as to the motives for making these figures. There are very few geometrical designs. On one surface are some circles with rays around their circumferences which prob-

Fig. 9. An Indian, probably a chief, with his insignia of rank on his left arm.



ably represent the sun. There is no pecked work, only lines abraded into the stone with some harder fragment. No imaginary figures are depicted. They are all realistic. They seem to show people, animals and events. Most are crude in execution and proportion, but some show action in beautiful simplicity. The age of these petroglyphs cannot be verified except to state that those depicting horses were done after the advent of the white man.

Other picture writings may be found in this same vicinity, some of which are shown in Figs. 8, 9, and 10.

The springs dried up during the rainless thirties. The old trees, the great ones, that the Indians knew, died and all that remains of them are a few fast decaying fragments of the huge trunks. All of the trees of today are less than fifty years old. But the carvings of men are still there, becoming dimmer with the passing of the years.

The authors first discovered these petroglyphs in 1925 and have visited them often since. Not a single tool has been found. No chips of flint or fragments of quartzite have been found on the cliff's rim or in the valley below. Eroded cuts have been searched but no remains of a camp site or village have yet been discovered. Food, water and fuel were in abundance. It was an ideal spot for an Indian to live. More work must be done to place this particular group of figures in their proper context.

Beyond the petroglyphs there is a splendid bas-relief of a long-horn steer cut into the soft tan stone (Fig. 11). Probably a lonely cowboy whiled away an afternoon forming its features. Today it gazes across the valley at Angus and Herefords as they graze in the blue-stem pastures.

All the figures except the steerhead were chalked to show their outlines more distinctly. Techniques are now being developed to photograph the petroglyphs without chalking or painting. If this is not done we will lose them much more rapidly than in the past. We visited this site two weeks after the last photography was completed. Some person or persons had used many for target practice. Some were completely destroyed. Even the steerhead was a shambles. So a later culture, differently oriented from those of the past, leaves its mark on the slowly weathering Dakota sandstone walls of the Russell site.

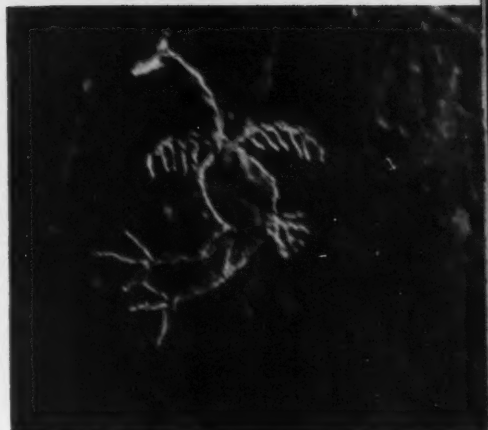
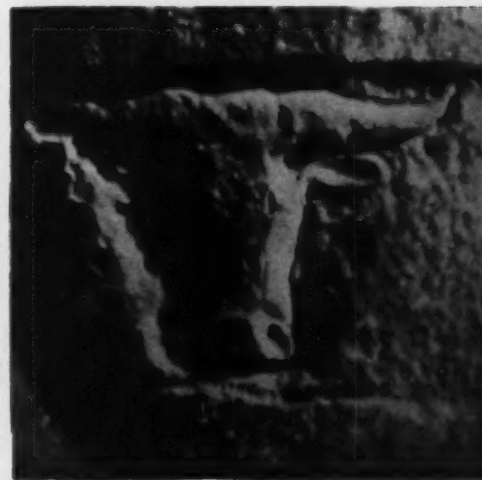


Fig. 6. Birds, probably wild turkeys.

Fig. 10. Another clan meeting.



Fig. 11: Longhorn steer, the work of modern cowboy artists.





Ray Brown, section foreman at Rufus, Oregon, sifted through the gravel, sand and overburden of every possible site between Big Eddy and Arlington in his 25-year search for fine arrow point specimens.

Roy Brown, Artifact Collector

As they hustle along the Columbia River section of US Highway 30, motorists glance casually from the ribbon of asphalt rushing under the nose of their cars to the ever changing grandeur of the passing scenery, little realizing that within a few feet of their speeding cars lie ancient artifacts left behind by civilizations long since passed.

The Columbia River, important to primitive as well as modern man, provides the most marked break in the rugged chain of mountains that extend from Alaska to Southern California. It also furnishes a navigable route over 2,000 miles long, reaching from the Pacific Ocean across the interior basin of the western United States to the slopes of the Rocky Mountains.

Primitive man, like modern man, found following the river to be a path of least resistance. The Columbia's waters provided transportation and food. Many ancient cultures were drawn to the banks of the mighty stream.

These cultures centered where food was easiest to obtain, such as alongside the falls or shallow rapids through which millions of salmon passed on their way to spawning grounds.

The area between The Dalles and Arlington was ideal in this respect with the flow of the river restricted by basalt dams. Here, along the three-mile rapids, Big Eddy, the five-mile rapids, The Long Narrows, Celilo Falls, Miller's Island and the bluffs of Biggs and Blalock, early man made his home.

The early cultures lead to the modern Indian nations seen by the first white explorers in the late 1700's and early 1800's. These were the Umatilla's, Nez Perces, Tenino, Klikitat, Wishram and Tygh nations.

These people left quantities of refuse wherever they lived. This is found in the form of stone chips from tool and weapon making, pottery fragments, animal and fish bones. Through the ages the refuse scattered about the village sites was covered by sand and dust.

When the first Columbia River Highway was constructed vast amounts of these artifacts were uncovered by construction crews. Whole museums were stocked with the finds. And, as time passed amateur collectors as well as professional archaeologists spent years studying the region to establish the identity of the early people and their cultures.

Ray Brown, Oregon Highway Department Section Foreman at the Rufus Station, Oregon, possesses one of the finest private collections of stone points, scrapers and knives ever found in this area. His interest in Indian lore began when he was a boy in school in Rufus. In the past 25 years he has worked nearly every site from Big Eddy to Arlington, concentrating in the Miller's Island-John Day River section of the Columbia.

In his spare time Ray has searched every possible basin along the Columbia's edge in order to add to his collec-

Roy Brown picks flint chips from the cave floor. This site was recently excavated by archaeologists. Note the fire blackened ceiling.



This cave, which shows evidence of occupation by early man, is located but a few yards off US Highway 30 on Watchman's Dip, 20 miles west of Arlington.



Collecting arrow points and other Indian artifacts is a fascinating hobby indulged in by many Highway employees. Ray Brown, Section Foreman at Rufus, Oregon, has spent 25 years gathering many fine specimens, a few of which are shown below. Brown's collection includes scrapers, awls, spear, fish and bird points. Materials are basalt, agatized rock, petrified wood, and obsidian. Some of the material was quarried locally — others came from the East Lake country in Central Oregon. A few points are made of agatized material found only in Montana.



tion. In some spots he has moved many yards of overburden and sand, screening the loose material in search of good arrow points.

By experience, he has learned to tell by the style of the arrow points and spearheads just where the stone was shaped. Each tribe of Indians made points of a certain style or outline that differed from their neighbors, even though their neighbors were but a few miles away.

Ray's experience searching for artifacts has given him an educated eye. He can glance at almost any cutbank along the highway right-of-way and find flint or obsidian chips and even pieces of or whole points. He also can read the stratum of earth to determine whether an old camp site existed at any spot.

It is the policy of the Highway Department to cooperate with archaeological groups conducting research in the area where Ray works. The construction of The Dalles Dam, completed a short time ago, and the John Day Dam, which has just begun, will raise the water level in The Dalles-Arlington area so that many of the old sites will be under water. This has accelerated the activity of many archaeological teams.

This past summer teams from the University of Oregon worked in the Quinton-Blalock area, east of Rufus, where they made some important finds. Ray spent his off-time as well as some of his working hours aiding these parties in whatever way he could. The Department couldn't have a better man in this area to act as liaison between the Highway Department and the research groups.

(Reprinted by permission from **Personnel Observations**, the official publication of the Personnel and Public Relations Division, Oregon State Highway Division.)

A three-inch obsidian point is one of the finest in Ray Brown's collection. Mr. Brown is an outstanding collector from a professional archeologist's point of view. He collects only "surface finds." His fine collection is properly catalogued and documented. He works with highway archeological salvage crews and reports his surface finds.

The Southwest Museum is a treasure-house, not only of objects of scientific interest, but of human drama as well. One mystery is wrapped in an ancient baby blanket, a small 29½ by 14½ inch piece of cotton cloth with tassels on the corners. It is a miniature version of the large blankets found in the Southwest. Wrapped in the blanket is the skeleton of a baby, but the skull and legs are missing! (Fig. 1.)

This is quite an extraordinary thing. Apparently, the body of a baby was placed on its back in the center of the blanket, the left side of the cloth was folded over the body, and the right side was folded over that. The little skeleton is very well preserved—even some skin still remains. All of the bones of the arms, hands, shoulders, trunk, and pelvis are present, but the skull and neck vertebrae and all the leg and foot bones are missing.

The position of the body on the blanket indicates that while there would be room for the head, there would not be room for the legs unless they had been flexed and the knees drawn up to the chest. However, if this were the case, there is no reason why all of the leg and foot bones should be missing, since the trunk was so well preserved.

The blanket has some stains of bodily decay in the place where the skull should be, but not enough to prove the head was present at the time of burial. We cannot be sure, but it looks very much as though the skull and legs were not lost during excavation or storage; instead, the body may well have been mutilated before it was wrapped in the blanket.

But why was the little body mutilated (if indeed it was)? We can engage in endless speculation—perhaps it was still-born, malformed, or was illegitimate, leading to some sort of revenge or ceremonial mutilation. At any rate, no doubt strong emotions once surrounded this little object. We can only be sure of that.

The Mystery of a Prehistoric Baby Blanket

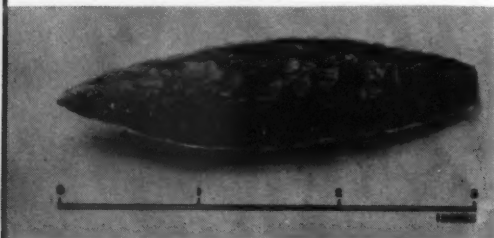
By Keith A. Dixon

The specimen was donated during the early days of the Southwest Museum, and its number (354:111:11) cannot be traced to any catalog. However, some inferences can be drawn from the cloth itself. In both form and weave, this tasselled blanket is quite typical of the Southwest. Furthermore, it is almost certainly not Hohokam, and probably is not Anasazi. Most likely, it is from one of the Mogollon-Pueblo cultures in Central Arizona, lying between the Verde Valley on the west and the upper Gila River area on the east. In addition, it probably dates from sometime between 1000 and 1400 A.D. (See Dixon 1956 and Kent 1957.) The good condition of the cloth and skeleton shows it was well protected. It may have come from a cave, or perhaps was found buried beneath the floor of a cliff ruin.

Analysis. The blanket is 75 cm. long on the weft dimension by 36.5 cm. wide on the warp dimension. It is complete and probably was made expressly for use as a baby blanket. It is a simple plain-weave, probably made on a standard Pueblo loom. The quality of the weaving appears to be very uneven, mainly because of the variable spinning of the heavy, loosely spun wefts which are from three to five times as thick as the hard spun warps. All yarns in the blanket are Z-spun.

Measurements of the number of threads in 5 cm., taken in various places in various places on the blanket, are remarkably consistent considering the uneven appearance of the weave. There are 7 warps per cm., and 6 wefts per cm., which is below the average of Southwestern textiles (Dixon 1956; Fig. 21; Kent 1957).

All four selvages are present. Each side selvage is two 3-yarn S-twist strands, S-twined about each other to enclose a weft at each half-turn as the weaving progressed. The side selvage cords are each a single long cord, looped over the end selvage strengthening cord at the bottom of the loom with the two



ends loosely fastened at the top of the loom. Thus, the cords were hanging at the loom sides and were twined into the fabric edges each time a weft turned back.

Each end selvage is also two S-twist strands, but each strand is 4-yarn. The two strands in each end selvage cord were S-twined through the warps during the stringing of the loom. The upper end selvage cord projects as a loop from one corner of the fabric, indicating that this cord was one continuous string, like the side selvage cords. It was doubled in the middle to make two cords during the stringing of the loom. Since the lower end selvage cord projects as two separate strings at each corner of the fabric, it must have been two separate pieces, or the loop was cut or torn after the fabric was removed from the loom.

At each corner of the fabric, the selvage strengthening cords project to form tassels. The side and end selvage cords at the upper end of the fabric are simply as they came off the loom. No attempt was made at any further modification by tying or by twisting them together, except for the end selvage

cord loop which was S-twisted together to form a single 8-yarn strand. At the bottom of the fabric, the side selvage cords do not project, of course, and the tassels are made only of the end selvage cords tied together with an overhand knot at each corner of the fabric. The tassels are from 5 to 11 cm. long. (For explanations of terminology and weaving techniques, see Dixon 1956, Dixon 1957, and Kent 1957.)

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November-December 1958.

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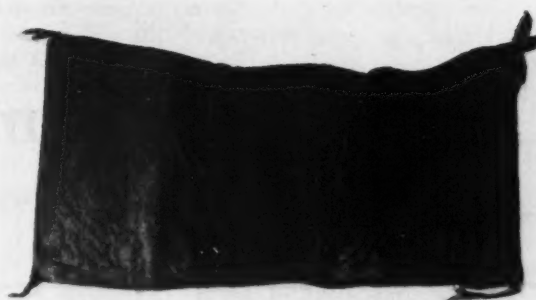


Fig. 1. Prehistoric Baby Blanket

How Many Israelites?

Premier Ben-Gurion of Israel believes that Moses led not 2,000,000 Israelites from Egypt, but 600. He bases his conclusions on pure mathematics. According to the Biblical account, 66 people (or 70, if you count the family of Manasseh) went into Egypt. They stayed three generations. How many wives and children would those 66 have had to have in order to produce 2,000,000 Israelites in three generations?

Archaeologists have found not one city of Troy, but seven, one over the other.

COMING

The review of M. Wells Jakeman's new book on the Izapa Stela #5 by Charles Gallenkamp was scheduled for this issue.

Due to conditions beyond our control, the review was delayed beyond the publication date. It will appear in the next issue.

Dr. Jakeman's book may be obtained from the *University Archaeological Society*, c/o Department of Archaeology, Brigham Young University, Provo, Utah.

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Were the Olmecs in Oaxaca?

By Joseph E. Vincent

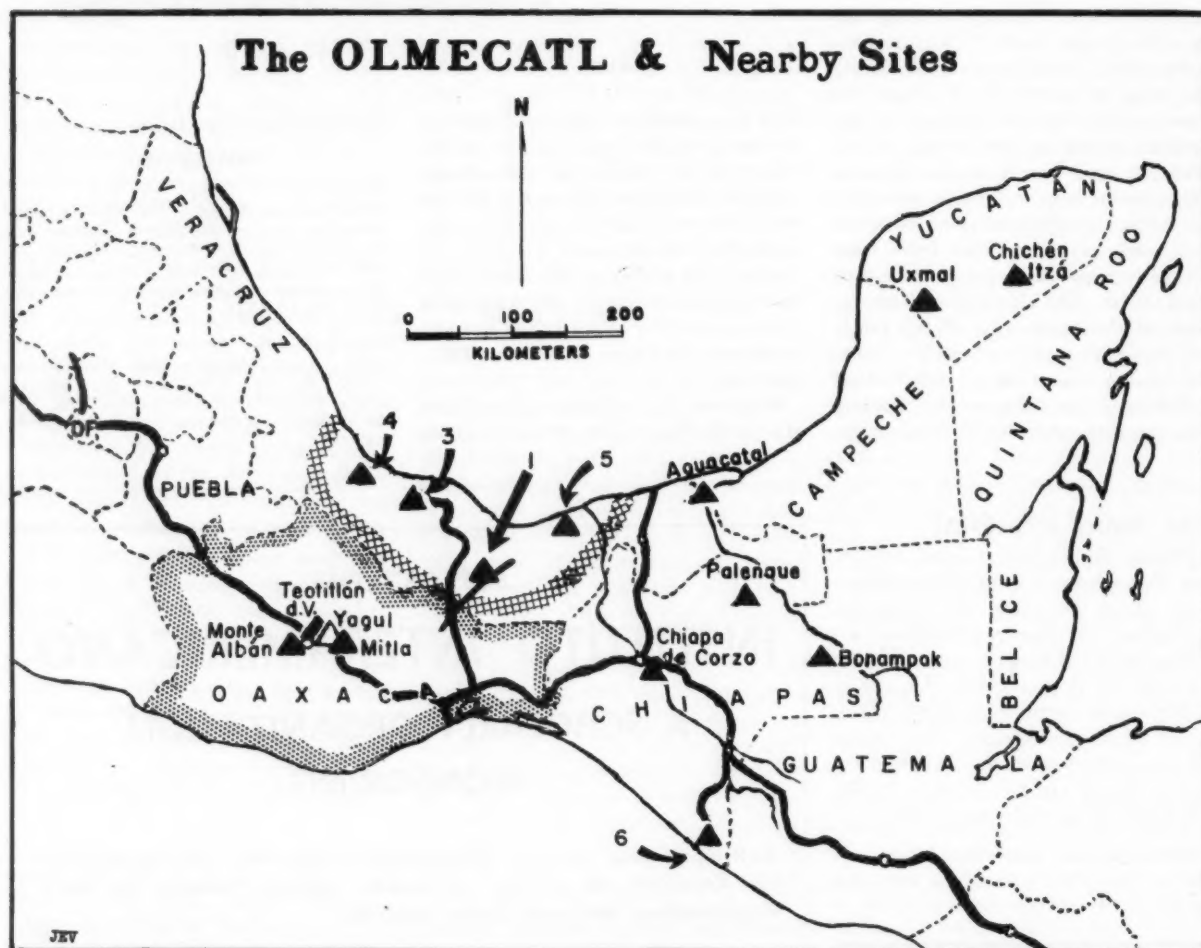


Fig 1. The Isthmus of Tehuantepec, showing relationship of the Olmecatl to the State of Oaxaca and the principal sites in the surrounding area. The sites excavated by the National Geographic Society in its nine years of work are numbered.

1. **SAN LORENZO.** Here the La Venta or "Olmec" culture reached its height. Five large heads (2 nine feet high) and the remains of an ancient aqueduct were discovered here.

2. (Site #2 not shown.)

3. **TRES ZAPOTES.** The oldest dated work of the New World, 291 B.C. (Spinden), was found here, as well as ceramic styles from 200 B.C. to A.D. 1000.

4. **CERRO DE LAS MESAS.** A cache of 782 pieces of carved jade was found here. Ceramics link this site with Tres Zapotes, pieces ranging from 300 B.C. to A.D. 1400.

5. **LA VENTA.** Ceremonial center of the culture. Colossal heads, carved jade, and mosaic floors with jaguar motif were found here. A tomb of priests held rich gifts of semi-precious stones.

6. **IZAPA.** Thirty stone monuments and altars curiously carved with man-beast figures. These represent a pre-La Venta period. At this site Stela No. 5, called the Lehi Tree of Life Stone by the Mormon people, was found.

Other important sites in this vicinity are the Mixtec-Zapotec series (Monte Alban, Teotitlan del Valle, Yagul, and Mitla shown) and four Maya ruins, Uxmal, Chichén Itzá, Bonampak, and Palenque.

Active work shown: Yagul, by Mexico City College, Department of Anthropology. Aguacatal, by Brigham Young University, Department of Archaeology. Chiapa de Corzo, by the New World Archaeological Foundation.

Almost everyone has seen the pictures of the large heads from the southern Veracruz area. Many have seen the large casting in the National Geographic Society building in Washington. Undoubtedly many have heard someone say, "Oh, that's Olmec." But just what is Olmec?

The term "Olmec" is one of the most elusive used by archaeologists or would-be archaeologists. Jiménez Moreno, the Mexican archaeologist of the Instituto Nacional de Antropología e Historia, has said that there are at least six different uses for the word "Olmec." Hence, with the same word meaning so many different things, it is quite hard to define who the Olmecs were or what the term actually means.

There seems to be a mystery, or rather a great lack of information about the Olmecs, in each of the six possible meanings of the word. Three of the most important uses of the word refer to (a) the La Venta Culture, and (b) the Cholulteca culture of Cholula, after the fall of Tula, and certain Nahua tribes, within historical times, who were immigrants. Those desiring more information on the other groups are urged to read Jiménez Moreno's *El enigma de los Olmecas* published in *Cuadernos Americanos*.

The word "Olmec" comes from the Nahuatl word *olmecatl* or *ulmecatl*, which in turn comes from *ulli*, rubber (Spanish, hule) and from *mecat*, string, cord, or line. The *Olmecat*, as we use the term, refers to the area between Rio Coatzacoalcos and Rio Tonalá, just south of the two cities of the same names, in the southern tip of the State of Veracruz on the northern half of the Isthmus of Tehuantepec. (See map, Fig. 1.) The *Olmecat* is the land of rubber of the Aztecs. The Nahua people (the correct name for the Aztecs) made the hard balls used in their games and sandals from the rubber. In the 1600's the Spanish coated their cotton capes with rubber, thus making the first rain-coats. Rubber still grows well in this area, the natives using the same primitive cultivation methods their forefathers used before the Conquest. There was no place as exotic to the Nahuas. It is like the South Seas to us or India to the people of Columbus' time. Incidentally, for them there was no area as wealthy, except possibly the Huasteca.

In spite of the wealth and exotic nature of the Olmecs and the Olmeca, the Nahuas always referred to them as savages and barbarians. This is prob-

ably because of the horrible way in which they spoke the classical Nahuatl of the Aztecs. Apparently, their Nahuatl could be roughly compared with the hillbilly, cockney, or pidgin English of today.

The so called La Venta culture is an early culture of the Olmecatl. Whether the present-day people of the area and those there at the time of the Conquest and the Aztecs were the same people is not known. What we shall call "Olmecs," for the purpose of this article, are the people who built the large basalt figures made famous by Dr. Stirling's articles in the *National Geographic Mag-*

azine.

About 40 years ago, an old Nahua man from Tabasco moved into this area with his family and settled. When he began to plant and cultivate his first crop of corn, he had difficulties because of the large basalt rocks he found. He investigated further and found they were actually large heads. The news spread rapidly. None of the inhabitants of that area, present or immediate past, seemed to know anything about the heads or the people that made them. It was apparently an unknown culture.

Some of the principal features of this early culture are: (a) The figures they

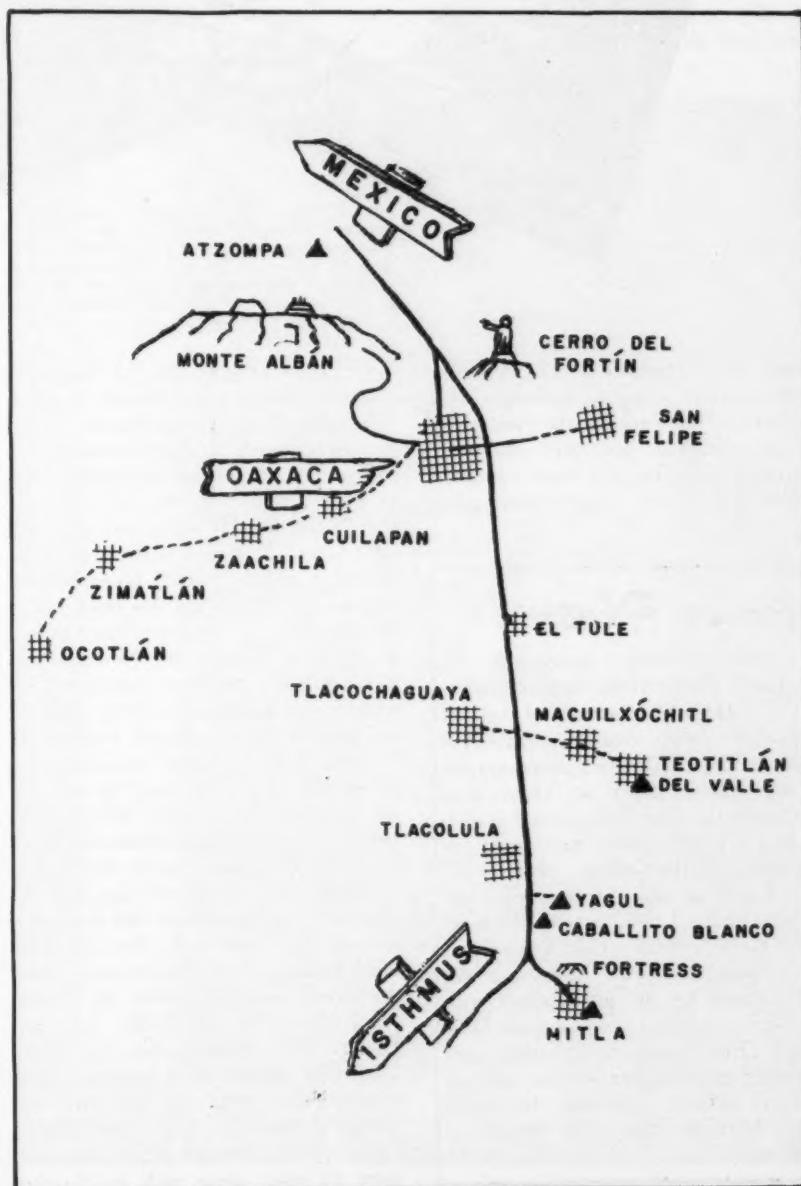




Fig. 2 (left), Fig. 3 (right). Two nearly matched ceramic masks on the ground, about as found, with dirt partly covering the jaw of the one on the left. Both are now the property of the Mexican government and are in the museum in Oaxaca. (Artifact No. TC-2467 and TC-2473.)

made were gigantic, some seven feet tall, having oriental looking faces, epicanthic folds around the eyes, round heads, Negroid lips, and perforated septums. (b) The jade work was good, some of it having a tiger mouth, possi-

bly a proto-Tlaloc image. (c) The tiger seems to be the basic element worked into many of the art expressions. Many human statues have tiger mouths. The tiger mouth of the early art works seems to have turned into the Tlaloc "mustache" (or possibly a lip ornament) of later times. (d) A system of hieroglyphs, known to us from Stela C, found at Tres Zapotes. In translating this stela, using the Maya system, the date, September 3, 31, B.C. is obtained (or November 4, 291, B.C., if another correlation is used). The significance of this date is not known. (e) Significant features illustrated by the Tuxtla man, a duck-billed man of jade bearing the date, in the Maya system, of A.D. 162. (f) The many mounds and inscriptions similar to the Maya found at Cerro de las Mesas.

Unlike the people of the rest of Mesoamerica, the Olmecs did not seem to have the death cult. For this and other reasons, some have surmised that this group may have been the cradle of civilization of all Middle America. This possibly oversimplifies the situation. The culture does seem to have a connection with the late Archaic, Monte Albán I, early Teotihuacán, Tlatilco, early Maya, and the early cultures of other areas such as Morelos

and Guerrero. This culture is of primary importance because of its early connection with other cultures of the area, but just where it fits, no one yet knows. Possible dates for the culture are 500 B.C. to A.D. 500.

There are a few more features that should be discussed before describing the findings in the Oaxaca area. It should be noted first that there is no basalt in the La Venta area. The basalt from which the giant heads were carved must have been hauled from the Tuxtla area, one hundred miles away. Hence the Olmecs must have had some engineering "know-how."

The second thing is that they were definitely artists, good ones. In one tomb an item was found and appropriately called a Buddha. It is an excellent piece of art work. The "Wrestler," now in the National Museum in Mexico, is usually considered their finest work, especially to European eyes. It has feeling, movement, and grace not often found in ancient works of this continent.

Some archaeologists tend to equate the Olmecs with Monte Albán I (the earliest period of Monte Albán a large ceremonial area near the city of Oaxaca) because of the dancinglike figures (dubbed *danzantes*) which have an

Cover Photo . . .

This excellent photograph by Charles Wicke of the staff of Mexico City College, Department of Anthropology, shows what is perhaps the most exciting artifact discovery of last season's work at Yagul near Oaxaca, Mexico. This brazier is similar to other pieces previously excavated by the College. All have the "Olmec" mouth. These pieces date from Monte Albán I period (the earliest known culture period in this area) and may possibly be the key that will eventually tie the pre-Zapotecs with other early peoples of southern Mexico. The department has been excavating in this area for six seasons in an attempt to unravel the secrets of the mysterious early peoples of Mexico.

Olmec appearance and other early figures found there.

A few years ago Dr. Ignacio Bernal was looking around for a new place for Mexico City College students to do their field work. The idea of digging at a site halfway between Monte Albán and Mitla intrigued him. He knew that at one time Monte Albán had been an important ceremonial center for the Zapotec people. He also knew that it had been abandoned in pre-Conquest times and the people had moved on south toward Mitla, which later became an important center.

It was known, too, that the Mixtec people had pushed in from the north, sometimes by force, and perhaps, sometimes peaceably. A marriage, between the members of two royal families, one Mixtec, one Zapotec was one peaceful act. Many features of the migration of the Zapotecs and the exact relationship of the Zapotecs and the Mixtecs are still unknown. Digging somewhere between Mitla and Monte Albán might throw some light on the mystery.

The site now known as Yagul, was once called Gui-y-baa by Bandedolier, was finally selected. Several seasons of field work have been put in by the students of Mexico City College since then. A fine "palace," a "temple," at least one dwelling, and a great number of tombs containing mostly Mixtec remains were uncovered. But little did Dr. Bernal or other faculty members realize what still lay in store for them.

Up until 1957 most of the work had been done in the higher levels of the hill which contained nothing positive from the earlier periods. During the winter quarter of 1957, the situation began to change. John Paddock, then in charge of the field work, decided that since all they had uncovered previously in the higher areas of the site seemed to indicate a ceremonial area and dwellings of the upper class, it would be well to excavate lower to find the dwellings of a lower class. Accordingly, an area known as Terrace C, seventy-five or more feet lower was selected. There, under his supervision and with the assistance of the writer, then director

of the Centro de Estudios Regionales in Oaxaca, the first exciting finds of the earlier periods were discovered.

Barbara Richards of Hays, Kansas, a regular student of the University of Kansas, was spending some of her time at Mexico City College for specialization. She was assigned a small area to start with. Little did she realize that she would spend a whole quarter in that one spot without moving more than a few feet in any direction.

First an end of a leg bone was found. Before that was completely uncovered another bone was discovered, followed by many others. Then one morning in the area of the bones a ceramic face, different from anything seen in the area, was discovered. Further digging revealed it to be part of a face (forehead and right cheek) of an

oriental looking figure (Fig. 2). Everyone thought, "Olmec," or perhaps, "Monte Albán I." However, since the use of such indefinite term as Olmec is frowned upon and since it was not proven to be of Period I, no one dared to say such things aloud.

The following day, in the same area, possibly a foot-and-a-half or two feet from the first one, a part of a similar head was found. This time it was the lower jaw and the opposite cheek (Fig. 3). Again everyone thought, "The rest of the Olmec mask," but no one said so.

So nearly matching were the two that one student was tempted to photograph the two parts together thinking they were one mask. In fact she did before realizing what she was doing. This action proved the old adage, "Don't say anything or do anything until you



Fig. 4 (right). A ceramic reproduction made by combining the individual latex molds to show how the originals probably looked. This museum replica may be seen in the Southwest Museum, Highland Park, Los Angeles. (Artifact No. 1558-G-1.) Compare this replica with the face on the braser shown on the cover. (Rule in photo is 30 cm.)

know what you are doing." When the pieces were all taken to the Centro de Estudios Regionales for the laboratory work, what had first appeared to be parts of one head (or mask) was actually parts of two matching heads (Figs. 2 and 3).

The repaired parts certainly looked "Olmec." That is, they looked somewhat like the large heads, described above, that were found at La Venta. But as nothing else was found that season except a few early ceramics of the Monte Albán I and II types, no one dared breathe the unholy word aloud. Later on, in referring to the pieces among ourselves, we sometimes said "Olmec-like" masks or perhaps the "Olmecoid" pieces.

During the winter quarter of 1960, however, things were much more revealing. The importance of Yagul was now definitely established and it became a Federal Archaeological Zone. Dr. Bernal was at first assisted by Charles Wicke, a member of the MCC anthropology staff. Almost at once Dr. Bernal was called away because of his position with the government. The remainder of the season was spent under Wicke's supervision.

Date Established

The following information from John Paddock of Mexico City College informs us that he has just received a carbon date that should interest all students of the Oaxaca area. A carbon sample of a tomb on Terrace F, Yagul, Oax., was sent to the Humble Oil and Refining Company laboratories for dating. The tomb was the same one which produced the beautiful *brasero* shown on the cover of this magazine.

Radiocarbon tests indicate that the date of the carbon sample (and likely everything in the tomb) is 2350 years "before present," plus or minus 275 years. This would establish the date of this tomb and the Olmec — if they were truly Olmec — occupation at about 400 B.C. This date fits in well with other dates previously established: (a) 650 B.C. for Montenegro in the Mixteca Alta (Monte Albán I style) and (b) 275 B.C. for Period II at Monte Albán itself.

Gradually the Monte Albán periods are being pushed back in time, one by one. Ed.

This time the students were working high up on the hill, on the other side of the ceremonial area, in a level area known as Terrace F. A few seasons before, a tomb with very elaborate carvings on the lintels and door had been excavated in this vicinity. In their exploratory excavations they ran into what is known as a burial complex formed by little rows of adobe bricks. Here the students came upon the prize find of all, a brazier with a distinct Olmec mouth. It was similar to the parts of the ceramic masks that had been found two years before. (See fig. 5.) Notice the typical "Olmec" mouth with the mustachelike upper lip. It was not only the most beautiful piece found, but the most important. This is because this piece definitely dates from Monte Albán Period I, the least known of all the periods. This is the period some archaeologists correlate with the Olmec culture.

This find in itself proves little but suggests a lot. It does, together with sherds found at Yagul, prove that all Monte Albán periods are represented at Yagul. It also indicates that Dr. Bernal was right in the selection of Yagul as an important area in which to dig. It may eventually help to unravel the mysteries of Monte Albán and the Zapotecs and, possibly, take some of the mystery out of the Olmecs.

Philip Drucker and Robert F. Heizer, coleaders of the National Geographic Society-Smithsonian Institution-University of California Olmec Archaeological Expedition to the La Venta area, had this to say in the *National Geographic Magazine* article, "Gifts for the Jaguar God":

"Other answers to the Meso-American riddle may still lie buried in the central pyramid of La Venta, answers that may reveal more clearly the relations of the Olmec with the Early Maya temple builders to the eastward, and with the ancient Zapotec who raised the splendid acropolis of Monte Albán in the Oaxacan highlands."

Finds in the Olmecatl will help immeasurably in solving the mystery of the Olmecs and their relationship to the other early Mexican inhabitants of the area. But, artifacts of the early periods of Yagul and surrounding areas, unearthed by students of Mexico City College, will also play their part in relating the Olmecs to other early Mexican inhabitants.

Hypothetical Continent

Did you know that the land of Moo of the Alley Oop comic strip is really a phonetic spelling (or misspelling) of Mu, a hypothetical island-continent of the Pacific Ocean? The existence of such an island, which the inventor called Mu (and called by others Lemuria) was postulated to account for the many volcanic islands of the Polynesian area, which he thought were once volcanoes or mountain tops of his theoretical island. Both Mu and Atlantis have been the subject of many "crackpot" articles within the last fifty years. One quasi-religious group still includes them in its literature.

Rival Tribes Founded Mexico

The city we now call Mexico was founded by two rival tribes. Both tribes settled on a very small island about a mile in diameter, one on the north, one on the south. The northern group built their capital *Tlatilolco* (now the *Plaza San Juan Tlatilolco*) while the other group built their *Tenochtitlán* (now under the Cathedral and Zocalo). They remained enemies for years and had a well established dividing line across the middle of the small island.

Contributions Wanted

Professional anthropologists, students and readers are invited to send in editorial contributions, illustrations and news items for possible publication. Material on any phase of anthropology, archaeology or the related sciences will be welcome and given every consideration.

Particularly needed at this time are material and pictures on:

- (a) Pictographs and petroglyphs
- (b) Jade and jade artifacts.

A series of articles on these subjects is in preparation. Illustrative and editorial material on both are needed. Complete articles on specific areas or pictures with caption material can be used. We can use drawings, photographs or good sharp color slides. All picture material will be returned.

If material has been published previously, please send permission to reprint or give name of copyright owner so we can contact him for permission.

Send contributions to:

Science of Man
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EXCHANGE OF POTSHERD COLLECTIONS

By Jack Ross

927 Davidson Drive
Roswell, New Mexico

A worldwide exchange program of sherds and other anthropological materials by dedicated amateurs would be a great help to these hobbyists, not only to themselves, but indirectly to those following this work professionally. Such a program is in effect in Chavez County, New Mexico. It is so successful there that the participants would like to see the movement spread throughout the archaeological world.

The exchange program was started by a few interested members of the Chavez County Archaeological Society by trading potsherds, slides, tape recordings and other related materials within their own group. It has now spread to friends elsewhere in the United States and Europe. Through this exchange members of the Society have learned much about the cultures elsewhere than in their own area. In addition they have learned many new techniques and have kept abreast of the important programs in the areas with which they have contact.

Undoubtedly there are other individuals and other clubs and societies that feel much the same as the writer. In fact it is entirely possible that there are other groups in the world already conducting such a program. For them I am very thankful and hope that more will start a program. It is only through such a concerted effort that we amateurs will have contact with each other and with those who are familiar with other cultures and other areas.

Any other groups or individuals wishing to cooperate in our exchange program are urged to contact the writer, whose address is given above, or the editor of this magazine.

Letters . . .

Dear Editor:

The students in my archaeological program for the Roswell Junior Archaeological Society are about to graduate, and I have been quite busy devising tests that will give an indication of their practical knowledge as well as theoretical. One of the test problems will include the complete survey and staking out of a site without the help of the

staff. I am certainly proud of my students and feel that they will come through with flying colors.

I am enclosing an article on what our club calls "Potsherds Program" which I hope you will publicize as much as possible. Since archaeology is not restricted to a few but is actually a world wide program, I feel that each of us has much to gain from such an exchange of materials as well as an exchange of ideas.

During the last few weeks I have managed to squeeze in a few hours to take my students to the field for much needed work in excavation. I regret to say that we have had to take quite a lot of time out of our field work to do what we could to prevent the destruction of our site by "pothunters" and vandals. We have obtained "penalty" signs from our Bureau of Anthropology and our students have helped me in posting them at all of our sites in this locality. In spite of them, however, on our return trips we have found the signs taken down or horribly mutilated, and our work in a sad state of disrepair due to the well known "pothunter." Sometime I think I would like to take a shotgun to one of these evil persons as a lesson to

the others.

My attempts to discourage this type of vandalism by means of television, newspapers, and radio have met with little success. In speaking to ranchers in this area, I find that these people not only destroy archaeological material but also stock, crops, and property in general. They seem to be in utter contempt for state and privately posted property.

Perhaps the formation of junior archaeological societies, dedicated to the purpose of stopping such vandalism, might help. While it might not deter the older generation, it would certainly aid in the education of the younger generation.

Jack Ross

Roswell Junior Archaeological Society
Roswell Museum, Roswell, New Mexico

The date of the creation of Adam was once set at 4004 B.C. by Bishop Ussher, in 1850, yet we now know that Hohokam culture lived here in America 8000 years ago (6000 B.C.). Other men are now believed to have lived here as far back as 25,000 years ago and in the Old World as far back as 500,000 years ago.

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Christmas Time In Mexico

Of all the seasons of the year, almost everyone will agree that the best time to visit Mexico is the Christmas season. Besides being the most festive from a religious standpoint, it is also the most spectacular time. Only "south of the border" could the old pagan pageantry combine with the ceremonialism of Christianity to give us the effect we find at Christmas in Mexico.

Although there may be some cool mornings and evenings in Mexico during the pre-Christmas season, good weather may be expected. December in Mexico is considerably warmer than it is in the United States, and for this reason alone many people prefer to visit our southern neighbor then. But that is only one of the many reasons.

The three main features of interest, besides the Masses and the fiestas of course, are the *nacimientos*, the *posadas*, and the *calendas*. (Nah-sec-mee-EN-tos, poh-SAH-dahs, cahl-EN-dahs. The capital letters marked the stressed syllables. The terminal "s's" on the preceding words, which indicate the plurals, are always pronounced as "s" and never as a "z," as in English.)

The Christmas season starts officially on December 16 at which time the families put up their *nacimientos* and the festivities begin. It doesn't end officially until Three King's Day, *el Día de los Tres Reyes* (or Epiphany), on the sixth of January. Even then if the family wants to keep the *nacimiento* up longer, no one thinks anything of it. (In foreign communities or places where there is European influence, the season may start on December 6, St. Nicholas' Day, as it does in central Europe.)

The *nacimiento*, more properly called *el portal* in many places, is what we would term "Nativity Scene," though it is a great deal more elaborate than the Nativity scenes we find in our ten-

cent stores or department stores. To us it would mean the Christ Child and His manger, the Virgin Mary, Joseph, and perhaps a few angels and shepherds, and the Wise Men. But the imaginative Mexican mind doesn't stop there. In fact it doesn't stop.

A *nacimiento* is a family project. It is also a family heirloom. Many of them were started generations ago. Likely they started just with the few figures we customarily think of as properly relating to the famous Bethlehem scene. Each year, however, the family adds to its scene. It is passed on to the next generation, and each year the family continues to add to it. What we customarily think of in terms of perhaps a dozen pieces might consist of two to three hundred pieces in Mexico. This many pieces require staging, backdrops, and scenery.

If the family has friends or correspondents, let us say, in China, you may expect to find a Chinese coolie in the scene. You will undoubtedly find American figures in the scene in addition to Mexican. An automobile, an electric train, or an elephant would not be out of place. Many require the most of a room to set them up, but there is always enough space left in the room to enter it to show the scene to admiring friends and relatives. Woe be to the poor, "uneducated" gringo who may be invited to admire one and, through his ignorance, criticizes it and finds "errors." There just can be no errors in a *nacimiento*. Haven't they been doing it that way for generations? No one else ever found fault with them.

The Christmas tree has no place in the Mexican Christmas. Actually the Christmas tree is European, but to them it is *norte-americano* (American, foreign) and not wanted any more than is Santa Claus. The *nacimiento* takes its

place.

Probably the next most important thing, and the most dramatic to the American visitor, is the *posada*. *Posada* is the Spanish word for "inn." It refers to the inn (or inns) at which the Holy Family asked for quarters in Bethlehem on their nine-night search for lodging which each night was refused.

To put on a *posada* properly, it is necessary for a number of families to join forces, each family's home representing an inn at which Joseph must ask for shelter for his wife. All persons taking part are dressed in characteristic brightly colored dresses and each carries a candle. Joseph and Mary and their donkey are taken from one of the *nacimientos* and carried on a litter at the head of a column. All the other participants follow along behind singing certain *posada* songs peculiar to the particular locality. All of the songs, regardless of location, ask for housing for the wanderers. At each house on the route, the door is answered and those inside reply negatively to the request in song.

The music of the *posadas* varies in theme and mood. Those begging admittance sing pleadingly in the *Kirie eleyson* or beginning of the litany, "In the name of Heaven I ask for lodging, for my beloved wife cannot walk further." The hostess and other guests sing a response, "Go away, there isn't room," until finally at the last house the family is reluctantly admitted.

In the pueblos, the processions are more solemn than in the larger cities. Often the litanies change to lullabies for the cradled Christ Child who is usually, though not always, carried at the head of the procession (even though strictly speaking He hasn't been born yet). In the more informal surroundings of the small towns, as the proces-

sion moves from house to house, it collects more participants until finally at the last house it may be very long. This is particularly true if the landlord of each house visited changes sides after playing his part in the refusals.

Finally on reaching the last house of the group, those inside reply that the wanderers will be accepted but that the only vacancy is in the cave stable. The Holy Family enters and the *posada* is followed by a fiesta which terminates the breaking of the *piñata*. *Posadas* go on night after night and the people will attend perhaps four or five different groups in the course of the pre-Christmas season.

The fiestas that follow, sometimes the *calendas*, are as spectacular as they are curious to the tourist. In every home, whether rich or poor, there is a *piñata* (peen-YAHT-tah) waiting to be broken. This is a large crockery or ceramic bowl or jug covered with curled paper, very highly decorated, and filled with candies, fruits, nuts, and other delicacies. The old traditional ones were shaped like a four- or five-pointed star, although more modern ones take on the shape of animals, mainly sheep, elephants, pigs, and donkeys. Each town has a full-time *piñata* maker whose profession was inherited from his father.

The *piñata* is suspended on a rope in the patio. Children gather around singing the *piñata* song which calls for peanuts and candy to "stuff the children with . . ." "No quiero oro, no quiero plata," they sing, "lo que quiero es romper la *piñata*." ("I don't want gold, I don't want silver, what I want is to break the *piñata*.")

The person who is designated to try to break the *piñata* is blindfolded and given a stick, broom handle, or baseball bat. He is turned around several times to make him a little dizzy, and then aimed in the right general direction. As he swings at the place where he thinks the *piñata* is, it is silently jerked to the ceiling by one of the adults assigned that job. After about three or four blows, another child (or sometimes a grown-up child) is blindfolded and given the bat. When the rope manipulator grows careless, the *piñata* is finally broken and the contents crash on the tile floor. Off comes the blindfold like a flash, and all scramble for the sweets on the floor.

After the breaking, guests retire to the house which is decorated with pine boughs, lanterns and streamers, for a

dinner of everything including turkey and turkey tamales. The party often continues until dawn.

American customs have played havoc with Mexican customs in the large cities. In the pueblos, Santa Claus and the Christmas tree are still taboo, being too foreign, but in Mexico City children may insist on them. This means that in Mexico and the larger cities, the children may have two Christmases or rather, two days for receiving presents. Mexican children normally receive their gifts on Three Kings' Day, but now, with this foreign idea of gift giving on Christmas or Christmas Eve which many children insist upon, the cost of Christmas doubles.

Calendas are usually associated only with Christmas by American tourists as they are most common during that season. However, Velázquez' *Spanish Dictionary* defines a *calenda* as "the part of martyrology which treats of the acts of the saints of the day." Thus they may be associated with any saint or any saint's day. Although they take place in all cities and towns of Mexico on many saints' days, those of Oaxaca at Christmas will be described here.

A *calenda* starts at one of the Catholic

churches of the city, of which there are more than a dozen. Each church has a large float built on a truck, somewhat like the floats of our American parades. The float is ornamented as much as possible, depending of course on the particular church, its financial situation, and the ingenuity of its members.

The procession leaves the particular parish church concerned, usually about dusk, and proceeds through the streets with the members, dressed appropriately, following. Although the floats and the señoritas that adorn them are beautiful, really the most spectacular part of the *calendas* is the *faroles* or covered torches that the members of the procession carry. Each *farole* of each parish is shaped differently, if possible, and of different colors or combinations of colors. It is difficult to imagine the appearance of a float just after dusk when the *faroles* have been lighted and the street behind the float is aglow with the lights of hundreds of followers.

While they may seem out of place to us, and perhaps even irreverent, firecrackers, Roman candles, sky rockets, and pinwheels are definitely a part of *calendas*, and sometimes other religious activities, without any thought of irrev-



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erence on the part of the participants.

As most Americans are collectors of souvenirs, which in the case of untransportable objects such as *calendas*, *nacimientos*, and *posadas* means collectors of photographs, it is well to say a few words about photography. First, you won't see a *nacimiento* unless you have made friends with a Mexican family. Having made friends with the family, stay friendly by not making the wrong remarks if the Nativity Scene doesn't suit your American ideas. Furthermore, stay friends with the family by not snapping pictures without getting prior permission. Remember the *portal*—another word for *nacimiento*—is sacred to them. The same may be said about a *posada*. You will have to be invited in order to attend one, although you may pass one on some street. As a rule, if you do pass one, it would be better not to interrupt the proceedings to ask permission to photograph it, if you are not acquainted. Most likely nothing would be said out-of-doors if you took a picture provided it was taken from a little way off and you were not obtrusive or obnoxious about it.

Since *calendas* are also out-of-doors, there is usually no objection to picture

taking if the photographer shows proper respect and reverence and does not disturb the procession while taking his pictures. On the contrary, if the Americans on the whole have been friendly in the area, a *calenda* may actually stop to allow picture taking.

Nacimientos are always indoors, of course, and are often in a small, crowded room. If you are invited to view one and if you get permission to photograph it, be prepared with a wide angle lens and some method of lighting. You most likely will not be able to plug into the local electricity. Base plugs are scarce, and in some towns electricity is on only at certain hours. Come with your own source of supply.

Posadas occur at night as do most *calendas*, in addition to their being out-of-doors. You will need a strong light source and fast film. It is best to leave home properly prepared.

TOURIST DATA

Oaxaca is the name of the state and of its capital city. Population 45,000. Altitude 5,000 feet. Famous for ceramics, gold and silver jewelry, and textiles. One of the most healthful and even climates in the Americas. Generally no rain from September through May, but even through the summer months the mornings are invariably sunny. The rains are typical of the tropics in that they

generally occur in the afternoons and evenings. Summer clothing for day wear, light jackets for evenings, and slightly warmer clothing for December.

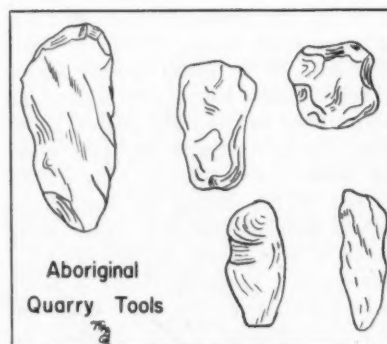
TRANSPORTATION. CMA planes from México, D. F. leaving every morning early. Trip 1½ hours. Autobuses del Sureste, Nino Perdido 19, México, D. F. Trip takes about 10 hours. **HOTELS.** *Oaxaca Courts*, 1 mile from zocalo on Mitla Hwy. Across from Pemex service station. Modern, American owned, better food than will be found in town. *Rancho San Felipe*, 3 miles out, hacienda atmosphere, bad road, handy to mountains, food served. *Marques del Valle*, on zocalo, modern five story hotel. *Pension Suiza*, under Swiss management, boarding house type, patronized by many Americans, 1 mile out, monthly rates. *Museo Frissell de Arte Zapoteca*, in Mitla, 30 miles from Oaxaca City, operated by Mexico City College, museum and living and dining facilities, primarily for students, scholars, or others interested in archaeology, art, or the social sciences.

CHURCHES. Santo Domingo Church, most impressive church architecture, must be seen to be appreciated. Cathedral, and Soledad Church. State Museum. Juárez Market. Indian Feather Dance. San Felipe del Agua, the tortilla center. **RUINS.** Monte Alban, 5 miles out, take taxi or private car. Mitla, 30 miles, and Yagul, 21 miles, take bus or private car or taxi. Other ruins, shops, factories, etc., too numerous to mention.

TOLTEC MINE . . .

CONTINUED FROM PAGE 11

ions and fair hair. They were peaceable, industrious and possessed of many arts. Their influence on the Mohaves alarmed the Piutes who distrusted the 'strange people.' They believed the rock carvings were bad medicine. The Piutes resolved on a war of extermination and after a long, desperate conflict, most of the strangers and Mohaves were slain. Since that time, perhaps a thousand years ago, the mines have been abandoned."



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There are 131 "native" languages still spoken in Mexico. It has been estimated that less than half the Indian population of Mexico understands Spanish.

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EDITOR'S COMMENT . . .

CONTINUED FROM PAGE 2

present, in this country and abroad. We hope to build the ability to get along with others as behooves a progressive people.

When the National Association of Local Anthropology Clubs heard of Mr. MacLachlan's idea, the officers realized that this magazine was just what it needed to revive the organization and put across the ideas for which it was originally established. With no hesitation, the officers of the National Association asked permission to make the SCIENCE OF MAN its official organ. Of course, permission was granted.

Now just what can we as archaeologists do to assist in the project?

First, if an amateur society or chapter of the NALAC is formed in your vicinity, give it your full support. In fact, give your full support to any amateur society whether it is a member of the National Association or not. If asked

to give a lecture, by all means do it. Use the opportunity to throw in a punch or two about the protection of our national heritage of the past, or perhaps to throw in a thought like, "What to do until the archaeologist arrives."

Then too, an article from you in the magazine would always be appreciated and would help the cause. Both the magazine and the national organization mentioned are running virtually without funds, and therefore can't pay for articles or lectures, but the good you can do your profession or hobby by giving your time for a lecture or an article is more than actual pay would amount to. Your writing or talking to amateurs will more than pay for itself through their cooperation.

Instead of waiting to be asked, why doesn't each of you who may be advanced amateurs or professionals volunteer to lecture to an amateur society or help in forming one? Why not send in articles for publication that would

interest the amateur? And don't forget the punch lines occasionally that would help alleviate the conditions mentioned in the newspaper items quoted. Remember, we and only we, can protect our ruins, our relationships, and our interests in these matters. Without these things we will not have anthropology.

The second thing you can do to help is to ask your legislators for appropriate legislation. With the increasing interest in artifact collecting and the increasing amount of vandalism, we must take time out to revise our laws. Our present laws were written years ago, before the science of anthropology had progressed to the degree it has now. Our laws were also written by legislators without sufficient information or knowledge of the situation.

Next issue we will discuss the antiquities laws, present, and we hope, future.

Gene Vincent
Editor

SOME DON'T'S FOR HOBBYISTS

(And for Students, too)

1. *Don't dig in ruins, mounds, graves, etc., unless you are sure you know what you are doing and have the proper authority.* In some places in the United States it is perfectly proper for an amateur to dig. He should know the basic elements of digging however, and, of course, he must have the authority. *Don't be a grave robber.*

2. *Don't dig or look just for artifacts or treasures.* Remember that while it is all right to have a private collection, you should be interested in finding out something about the ancients who made the artifacts. Once disturbed, the items lose much of their value as history of the past. Remember, artifacts are like the individual letters in a history book of which you have but one copy. If you scramble the letters with no record of how they were originally arranged, you've lost your history. *Don't be just a pot hunter.*

3. *Don't transport artifacts across an international border.* As a rule, artifacts (relics of ancient men) are governed by the laws of the country in which they were found, and they may not be taken out without authority. Mexico, for example, has very strict laws about this. If you are a qualified person, however, and the items are surplus beyond those needed for study, permission may

be obtained at times. You owe it to the respective governments not to buy from those known or suspected of being engaged in smuggling, or to encourage anyone to do it. *Don't be a smuggler.*

4. *Don't encourage the making or selling of fakes.* Don't buy from peddlers along the roadsides in Mexico. In most cases what they are selling are fakes, regardless of what they say. They are just trying to make a living. Properly identified museum replicas are good, but fakes sold as originals are not. *Don't be a sucker.*

5. *Don't fail to report to the nearest authority when you find any type of old ruins or a group of artifacts.* The nearest museum, college, or anthropological (or archaeological) society can tell you where to find an archaeologist. You may have found the very things that will fill in blank pages in the local history for him. He will know how to use the information and whom he can get to follow it up. He will also know what to do with the artifacts found. *Don't let it ever be said that you were the cause of losing several pages of our early history.*

6. *If you do have the authority to dig, don't fail to record everything you dig or find, exactly, and don't fail to take pictures of each step.* By "exactly" is

meant not only the location in relation to nearby houses or bench marks or street address, but also just exactly where (down to feet and inches), and how far below the surface. Pictures should show the relationship to various surface features (houses, trees, etc.) and also should show your work as it progresses, with plenty of close-ups. *Don't be a picture-snapper, be an archaeological photographer.*

Maya Numbering System

The Arabs after whom we have named our repeating numbering system (Arabic numbers) were not the only ones to have invented such a system. The Maya and other early Indian groups also used a repeating numbering system. The Arabs who allegedly invented ours, used ten as their base because of ten fingers. Hence we call our numbering system a decimal system (from the Latin *decem*, ten). However since the Indian groups chose twenty as their base, we call it "vigesimal" (from Latin *viginti*). Imagine the difficulty a person would have who learned his multiplication in the Arabic system of tens, trying to relearn multiplication in the vigesimal system. Since the twenty in the Indian system occupies the same relative position as our ten, the number that would be similar to our 100 (10 x 10) would actually have the value of 400. Think it over!



The Dog Stone of Teotitlan del Valle

Midway between Oaxaca and Yagul, in southern Mexico, once stood a magnificent city, possibly as spectacular and awe-inspiring as Mitla, the City of the Dead. Little remains now to tell us the story but a few isolated engraved stones set here and there in the walls that line the streets or that form the sides of homes, churches, and public buildings. The site is now the village of Teotitlan del Valle.

Just where the buildings stood is difficult to determine now. However, if all things conform to the pattern of events that transpired in other localities, it is safe to assume that the main center was in

the place where the village church now stands. Early missionaries customarily tried to unite the old religion with the new as the first step in converting the people, by the strategic placement of the church. From this cultural and religious center, the other buildings of the ancient town spread out.

Today the tourist will find many types of engraved stones set in the walls of the church itself. One can see engraved stones in the walls that line the streets, in the town hall park, and in homes. They are also found as far away as the twin town of Macuilxochitl. No one knows how many other stones were used that

have been turned inward so they are no longer recognizable.

Some of these stones duplicate the greca-work of Mitla and the grecalike engraved stones of Yagul. Many resemble the figures of the early periods of Monte Alban. One of these is the beautiful "dog stone" or "tiger stone," shown above. It is set in a retaining wall one block north of the church.

Scientists have long wondered about these ancient structures. With the present day twin villages built over the ruins, little can be done to make a coordinated investigation of the area. The old city will probably remain a mystery for years to come.

